REPORT OF THE PROCEEDINGS

OF THE

Northumberland and Durham

MEDICAL SOCIETY.

SESSION 1886-87.

NEWCASTLE-UPON-TYNE:
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1886.

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The Medical Officers of Her Majesty's Forces in the District.

NORTHUMBERLAND AND DURHAM
MEDICAL SOCIETY.

SESSION 1886-87.

ANNUAL MEETING.

The Annual Meeting was held in the Library of the Newcastle-upon-Tyne Infirmary, on the evening of Thursday, September 30th, 1886, the President, Dr. Fielden, in the Chair.

The ballot papers for the election of officers for the ensuing session were scrutinized by Mr. Black and Dr. Lyons, with the following results :—

President : (no opposition) Dr. G. H. Hume.

Vice-Presidents : (no opposition) Dr. S. Fielden, Dr. David Drummond, Dr. Jas. Murphy, Wm. Gowans, Esq.

Hon. Secretaries : James D. Farquharson, M.B. ; Dr. Thos. Oliver.

Committee : Dr. W. C. Arnison, Dr. Jas. Adamson, Dr. B. Barkus, Dr. J. W. MacDowall, G. B. Morgan, Esq., Dr. J. R. Morison, Dr. G. H. Philipson, Dr. Squance, G. E. Williamson, Esq.

REPORT OF THE COMMITTEE FOR 1885-86.

Your Committee have pleasure in presenting, once more, a report of a highly satisfactory character.

Since the last Annual Meeting, 17 new members have been added to the list ; 2 have died (viz., Dr. Morris, Chester-le-Street, and Mr. T. J. Turnbull, Shields) ; 7 have been struck off for non-payment of subscriptions ; and 11 have resigned or left the district. The total number of members on the roll at present is 173.

The income for the year, including a balance brought forward of £86 2s. 3d., amounts to £162 12s. 3d. The expenditure was £81 5s. 10d., leaving a balance in the Treasurer's hands of £81 6s. 5d. The amount of subscriptions unpaid, your Committee regret to state, is rather high, the total due on this head being £27 10s.

The Catalogue of the Infirmary Library, referred to in last report, is making satisfactory progress, Mr. DODDS having the work brought up to the letter T. and we hope that before the end of the session a copy of the work will be in the hands of each of the members.

Your Committee regret the resignation, by Dr. DRUMMOND, of the office of Secretary, which he has so ably filled for seven years. They feel that the warmest thanks of the members are due to Dr. DRUMMOND for the time and labour he has ungrudgingly given to the duties of the Secretaryship, and for the tact and ability which, during his tenure of the office, have largely promoted the success of the Society.

On the motion of the PRESIDENT, seconded by Dr. HUME, the report was unanimously adopted.

After the Annual Meeting, the members and friends dined together in the Douglas Hotel. Dr. FIELDEN in the Chair.

NORTHUMBERLAND AND DURHAM MEDICAL SOCIETY.

SESSION 1886-7.

OCTOBER MEETING.

THE First Monthly Meeting of this Society was held in the Library of the Newcastle-upon-Tyne Infirmary, on the evening of Thursday, October 14th.

THE PRESIDENT.

Dr. FIELDEN: The time has now come when I must vacate the position which I have held for the past two years in this Society. In looking back over the time during which I have had the honour to be your President, I find much to fill my mind with satisfaction. The meetings have been very largely attended, many interesting cases have been exhibited, numerous papers of importance have been read, and practical discussions have followed, and, lastly, there has been a steady onward move in the membership, until the roll has now reached an unprecedented length. It remains for me only now to introduce my successor in office, Dr. HUME, and to hope that you will extend to him the same kindness which, during my tenure of the Chair, has been invariably shewn me.

Dr. HUME: In taking my stand in this place for the first time, I have to thank our retiring President, Dr. FIELDEN, for the kindly manner in which he has introduced me; and I have also to thank the members, how heartily I cannot adequately express, for the very high honour they have conferred upon me in raising me to the Presidential Chair of the Northumberland and Durham Medical Society. I esteem the honour all the more highly because this is an office which has been adorned by the most distinguished men of the two counties, and, in electing me to follow in their footsteps, though you set me a task difficult of accomplishment, it will still be lightened by the consciousness that I have, in some way, earned your good will and esteem. In conclusion, gentlemen, I can only express my earnest hope that, during my occupancy of this Chair, the Society will continue to enjoy the same amount of prosperity which has marked it during the tenure of office of my predecessors.

Dr. PHILIPSON: It is my pleasing duty to move the following Resolution, which has been put into my hands, namely:—

> "That the warmest thanks of the members of the Northumberland and Durham Medical Society be conveyed to Dr. FIELDEN for the successful manner in which he has discharged the duties of the office as President of the Society during the past two years."

I feel that it is quite unnecessary for me to eulogise Dr. FIELDEN for his conduct in the Chair during his term of office, the great prosperity of the Society is sufficient indication that there was nothing awanting at the head of affairs. I feel, however, that it is my duty to offer my congratulations, and those of the members, to Dr. FIELDEN on the great increase in the membership, and on the great increase of the papers, and other valuable contributions to the transactions of the Society.

Dr. GIBSON: I have much pleasure in seconding the Resolution submitted by Dr. PHILIPSON, and, in doing so, I must say that I was much gratified at the election of my friend, Dr. FIELDEN, and his conduct of the affairs of the Society has more than justified the confidence that was then placed in him. In bearing testimony to the value of his services as head of the Society, I am sure that I utter the sentiments of those about me when I express the hope that, in losing Dr. FIELDEN as President, we will not lose him as an active worker and warm friend of the Society.

The Resolution was carried by acclamation.

Dr. FIELDEN: I can only thank you, gentlemen, for the very high compliment you have just paid me. Any thing that I have been able to do I attribute more to the kind indulgence of the members, and the co-operation of the officials of the Society, than to any merit of my own.

NEW MEMBERS ELECTED.

The following gentlemen were elected members of the Society:—

CHARLES WICKS, L.R.C.S., Newcastle-upon-Tyne.
F. L. ROBERTSON, M.D. (Glasg.), Newcastle-upon-Tyne.
R. J. FOULIS, L.R.C.S. (Edin.), Wylam.
GEORGE MIDDLEMISS, L.R.C.S. (Edin.), Darlington.

The following gentleman was elected an honorary member of the Society:—

WALTER F. C. BARTLETT, Fleet Surgeon, H.M.S. "Castor," Tynemouth.

NEW MEMBERS PROPOSED.

The following gentlemen were proposed for election:—

ARTHUR CROSS, M.B., C.M. (Edin.), Hilton Downs, Fence Houses.
THOS. KIRKWOOD, M.B., C.M. (Glasg.), Newcastle-upon-Tyne.
H. W. DIXON, M.B., L.R.C.S. (Edin.),

CASE OF HYPERTROPHIC CIRRHOSIS OF THE LIVER.

Dr. Drummond: This man, aged 45, a horse-keeper in connection with a colliery, was admitted in the Newcastle-on-Tyne Infirmary early in July, for jaundice and enlargement of the liver. The patient stated that he had enjoyed comparatively good health until the commencement of the present year, when he began to suffer from paroxysmal attacks of pain in the abdomen, below the umbilicus, until a dose of castor oil operated, a remedy that experience had taught him to use. He had several of these attacks, unaccompanied by jaundice, during the earlier months of the year, and, at the beginning of May, the symptoms changed somewhat. He no longer felt the pain, but indigestion of a severe type set in. He lost his appetite, suffered from flatulence, became constipated, and experienced inconvenience after food. On the 11th of May he first noticed the jaundice, and this symptom, with the dyspepsia, has continued unabated up to the present. During his stay in the Infirmary, now a period of about 12 weeks, he has emaciated considerably, the jaundice has gradually deepened, the motions being persistently white, and the urine of a dark bilious colour. The liver has not altered very materially from the date of the first observation, unless perhaps it may be said to have increased in size for a few weeks, and then slightly decreased. It is decidedly enlarged, and reaches below the umbilicus. The surface is smooth and regular; there is a total absence of pain on manipulation. One is struck by the fact that, notwithstanding how much enlarged the organ is, the upper limit of dulness is considerably below the normal hepatic level. There is no ascites, nor are the veins at all enlarged on the surface of the abdomen. The patient owns to having lead an intemperate life, but urges that it was only beer he drank, or very little spirit. The diagnosis of the case appeared to lie between three conditions, viz., hypertrophic cirrhosis, impacted gall stones, and malignant disease, and I ventured to believe that the two latter were untenable. Against gall stones were the facts that the site of the pain complained of early in the history of the case was below the region of hepatic colic, and further, the pain had always been relieved by castor oil, and jaundice had never been a feature of the attacks. The absence of pain on manipulation, and the regular, smooth enlargement might be urged against the theory of malignant disease. The opinion of the members as to the nature of the case is invited, and the hope expressed that, in the discussion that follows, special attention will be given to the question that is interesting clinical physicians and pathologists very much at present, viz.: Is there a special form of cirrhosis that is deserving of the name of hypertrophous, hypertrophic, or biliary cirrhosis? or are some cirrhotic livers enlarged, some reduced, and have some the

portal system, and some the biliary system obstructed as a mere accident of the distribution of the new connective tissue.

Dr. PHILIPSON: I am pleased to have an opportunity of offering a few remarks on this very interesting case. I may say that I quite agree in the opinion that this is a characteristic example of hypertrophic cirrhosis. The intensity of the jaundice, the length of time it has persisted, and the fact that the jaundice is unaccompanied by ascites, point to some other condition than an ordinary cirrhosis or malignant disease. And, again, the jaundice is here associated with an enlarged liver, painless and smooth. I express my opinion the more decidedly because some months ago I had a case of a similar nature, and I founded my diagnosis then on the points I have enumerated. Dr. DRUMMOND seems to attribute the condition here to the habits of the patient, but, perhaps, the condition may not always be due to alcohol. My patient was exposed to great vicissitudes of temperature, and had not been a heavy drinker. The anatomical characters in these cases are very different from those of atrophic cirrhosis. In the atrophic, we have the lymph poured out round about the portal canals. In the hypertrophic, on the other hand, the pressure is upon the bile ducts, but not pressing upon the vessels. I believe there are two forms of cirrhosis of the liver, differing in their anatomical forms, differing in their physical character, and in their diagnosis.

Dr. OLIVER: The main question raised by the exhibition of Dr. DRUMMOND'S case is whether this is to be regarded as a case of hypertrophic cirrhosis of the liver, or whether it is simply the enlarged early stage of the ordinary atrophic form of cirrhosis. And, as against the latter, I would draw attention to the long, persistent enlargement of the liver, the presence of jaundice, and the absence of ascites. These three things give us a disease with features entirely different from the usual form of contracting liver known as cirrhosis. It is, for the most part, a question of the situation and distribution of the newly-formed connective tissue. Surrounding the lobules, and compressing the branches of the portal vein in atrophic cirrhosis, we have an explanation of the ascites, the presence of piles, and the intestinal hæmorrhages. that occur in this affection. But in the hypertrophic form, the lesion is within the lobules around the biliary canaliculi or it follows the divisions of the larger biliary canals or hepatic duct within the liver, and hence the presence of jaundice from obstruction, and the abscence of ascites, and the other phenomena. I am inclined to regard hypertrophic cirrhosis, therefore, as a distinct affection. Sometime ago, I had the opportunity of studying the microscopical specimens of Prof. CHARCOT, bearing upon this disease. All his preparations showed how very easily a biliary cirrhosis of the liver was set up by ligaturing the branches of the

hepatic duct, or by causing obstruction by other means within its branches. To such conditions, therefore, would I seek to assign its cause, rather than to the intemperate use of alcohol, or exposure to vicissitudes of temperature.

Dr. GIBSON: This subject is one of which I know almost nothing. Hypertrophic cirrhosis of the liver must come within the observation of a very limited number indeed. The cirrhotic processes must go on for a long time, and, in ordinary cirrhosis, the formation of connective tissue must always, in the first place, be associated with enlargement of the liver. And, although this man is at present the subject of an enlargement, if the disease is to be regarded as a hypertrophy at all, it must be regarded as a temporary hypertrophy. He has only been under observation something less than twelve months, and that, I submit, is not long enough to form a definite opinion. But I am not altogether inclined to admit that we have here a cirrhosis at all. The feel of the liver, and the absence of pain, might lead one to suspect amyloid disease, and an amyloid degeneratiou would also account for the enlargment.

Dr. PEART: In this case, the hardness of the liver to the touch is not the resistant feel one generally looks for in cirrhosis. It might be a fatty, or some other change, as Dr. GIBSON has suggested, giving rise to enlargement.

Dr. BUTTERCASE: As this man was, for some time, under my care, I can confirm Dr. DRUMMOND as regards his habits. But, when the patient left home to go into the Infirmary, there was very slight enlargement of the liver, and this great growth must have taken place since his admission. The jaundice came on very suddenly, and without any sickness or pain.

Dr. DRUMMOND: Whether the enlargement was sudden or not I cannot positively say. The liver was tolerably well enlarged before I examined him, and it is possible that a sufficient interval of time may have elapsed between Dr. BUTTERCASE'S examination and mine to allow of some enlargement. With regard to CHARCOT'S views, referred to by Dr. OLIVER, my opinion is that CHARCOT'S views have been quite upset.

CASE OF SPECIFIC DISEASE OF LIVER.

Dr. DRUMMOND: Here is a characteristic case of specific disease of the liver. This woman is 24 years of age, and, on examination, the liver will be found to be much enlarged and painful, and large irregular masses can be distinctly felt projecting from the anterior borders. These are, without doubt, syphilitic gummata.

PERIOSTEAL SARCOMA OF TIBIA.

Mr. Page: R. H., æt 21, single, was admitted to Ravensworth Ward on September 9th, 1886, complaining of a swelling of the left calf. He had always enjoyed good health previous to his present illness, and his family history was good, no history of any tumour being obtainable. Six years ago, his left leg was severely bruised by a horse. Five months ago (April), he felt deep-seated, aching pain below the inner tuberosity of left tibia, not worse at night A week later, the knee became stiff and began to swell just below the joint. The swelling was uniformly hard, well defined, immoveable, and not tender. It increased rapidly. On admission, he was found to be a tall, rather weakly looking man, of light complexion, with all organs healthy on examination. The left leg lay on its outer side, semiflexed; the thigh muscles were atrophied. Situated on inner surface of upper third of the leg, was a flattened, oval swelling, commencing above at the line of the knee-joint, and extending below to the upper portion of middle third of leg, being seven inches long; it reached in front to the crest of the tibia, behind, beyond the middle line filling the lower half of the popliteal space, and measured nine-and-a-half inches in its broadest transverse diameter. Œdema extended for a couple of inches beyond these easily defined borders all round. The tumour fluctuated, or rather was elastic all over; was deeply attached, but did not crackle. The skin over it was red but not adherent; had been blistered. The leg and foot were considerably swollen from œdema. There was no fluid in knee-joint, and neither swellings nor tender spots could be felt in thigh or groin. An exploring needle drew off bloody fluid containing large numbers of round, oval, and tailed white cells. I amputated through the middle of the thigh, using a continuous suture, and inserted two drainage tubes, one right across the stump, and the other a short one coming out from the middle of the flaps and reaching inwards to the bone, and with the other tube forming a ⊤ shaped drainage. The man recovered without a bad symptom. On examining the leg, a tumour was found lying between the gactrocnemii and soleus in contact above with the posterior and inner surfaces of the tibia and almost into the knee-joint. It was yellow in colour, lobulated on the surface; one section presenting a soft, gelatinous substance, exuding an oily liquid on pressure, and containing numerous cysts, one as large as a hen's egg. The upper portion was developing into bone The tumour had a thin but distinct capsule which was continuous with the periosteum of the tibia, and had not infiltrated the muscles. Where in contact with the bone it was invading that structure, its invasion being marked by small excavations. On microscopical examination, the growth proved to be a spindle-celled sarcoma, developing in places into cartilage.

FOUR CASES OF ANEURISM.

Dr. MURPHY: I have no doubt the members will remember that last year several very interesting cases of aneurism were shown to the Society, and it is worth recalling to mind that last year was the centenary of the application of the Hunterian operation, as, in December, 1785, JOHN HUNTER first applied a ligature to the femoral artery in the canal that bears his name for the cure of popiteal aneurism. To-night, I show you these four patients, and venture to hope that each will interest the Society.

Case I.—R.L., aged 40, on May the 10th accidently stabbed himself in the left forearm, wounding the radial artery at about its middle, and, in a few days, he noticed a small pulsating tumour, which gradually increased until I saw him a month after, when it was the size of a small hen's egg. Inasmuch as it was daily increasing in size, and flexion of the elbow had no effect on it, while it was completely controlled by pressure on the brachial for the time being, but its continuance held out no method of cure, and, connecting the difficulty and danger of cutting down on it to secure both ends, compared with the simplicity of ligature of the brachial, I determined to perform the latter operation, which I accordingly did, and all pulsation ceased, and the tumour diminished for two days. At the end of that time, however, slight pulsation returned, which gradually increased till, at the end of three weeks, the tumour was as large, and pulsating as freely as before the operation, and I then applied a pad, bandaged to the artery above the tumour, and the pulsation became gradually less, and, at the end of a fortnight, it had quite disappeared, and now there remains no evidence of any tumour. The brachial artery can be felt pulsating as far as the middle of my incision before it abruptly stops.

Case II had symptoms of popliteal aneurism for three months, and had been treated with various liniments till May last, when he consulted Dr. FLYNN, who at once recognised the nature of the disease, and kindly asked me to see the case with him next day. It was a typical case, but the man had suffered from asthma for several years, and had acute bronchitis, with a temperature varying from 102 to 103½, so we waited for a few days to get him into a better state of health before attempting a cure. As the aneurism was increasing, and the pain most severe, necessitating hypodermic injections of morphia two or three times a day, we applied pressure, by means of a CARTER's tourniquet, on May 24th, but this he could only bear for an hour-and-a quarter, and would not have it re-applied on any acccunt, so there was nothing for it but tying his femoral, which I accordingly did on May the 28th, and, though his temperature had not been less than 102 for the preceding week, everything went well, and he perfectly recovered

without a single untoward symptom. The ligature was of carbolised and waxed Chinese silk, and kept long. The wound was, of course, treated antiseptically, and, at the end of the forty-second day, as the ligature had not come away, I cut it off short, the wound healed over, and nothing has since been seen of it.

Case III. is a most interesting one, but my share in the cure is a very small one. A. R. was admitted into the Sunderland Infirmary, in 1873, for an aneurism of the left femoral artery, about the middle of the thigh. This was cured by pressure. He returned in 1874, when I was House Surgeon in that institution, and he then had a similar aneurism in the right femoral artery. My colleague, Dr. Thomson and I kept up digital pressure for six hours, with no effect. A fortnight after, we again applied digital pressure for four hours, then gave chloroform, and applied CARTER'S tourniquet for two hours, when the pulsation ceased, and this artery has continued well ever since. He then left the Infirmary, and my share of the case is finished. But, I may tell you his subsequent history. He returned in six months with an aneurism in the site of the original one in the left femoral, which had previously disappeared, and, after remaining in hospital for a few weeks, left suddenly and went to Edinburgh, where Mr. ANNANDALE tied his left external iliac without producing any effect on the tumour, on which he then performed the old operation of Antyllus, which was revived by Mr. SYME, with perfect success

Case IV. is a man, aged 42, suffering from what I take to be an aneurism at the root of the neck, at the right side, and I should be glad of the opinion of the Society on its treatment. I take it, the points of interest in Case I. is the treatment of a Traumatic aneurism by the Hunterian operation, the return of the pulsation, and its cure by pressure. In Case II., we have the success of the operation, despite an attack of acute bronchitis, with a temperature ranging from 102 to 103½; and the length of time the ligature remained is also worthy of notice. In Case III., the fact of the man being the subject of aneurism of each femoral cured by pressure, the return of one aneurism after eighteen months, the failure of the ligature of the external iliac, and the complete success of the operation of Antyllus; and, finally, it is of great practical interest to see the permanency of these cures in that the man is now alive, and in perfect health, thirteen years after the cure of the first aneurism.

Dr. PHILIPSON: I should like to ask one question in regard to the pressure in Dr. MURPHY'S very interesting series of cases. After pressure, in the course of the artery, did consolidation take place suddenly in the aneurism? This sudden stoppage of the pulsation has always been a great point in the teaching of Dr. HEATH; and he mentions it, as an encouragement, to persevere

with the pressure, since. after a long spell of the treatment, and when hope of success is beginning to fail, the tumour sometimes quite suddenly ceases to pulsate, and becomes solid.

Dr. Williamson: I should like to know if there was any specific disease in the man with the multiple aneurisms? I remember seeing a case in London of a patient who had aneurisms of both femorals cured by ligature at different times, and then died of aneurism of the coronary artery. In that case there was a specific history.

Dr. Hume: My experience of pressure is not very great, but I can recall one case in which we began to apply pressure at eleven in the forenoon, and continued it till six o'clock at night. During all that time there was no attempt at consolidation, and, just as we were losing all hope as well, there came into the tumour a flickering distinctly felt under the fingers, and then, quite suddenly, the pulsation stopped. The failure of ligature of the external iliac in the 3rd case is instructive. I think that that ligature must have been applied close to the giving-off of the profunda, and the current from that great branch may have restored the circulation in the sac before its contents had time to coagulate. In regard to the 4th case, I should like to know what vessel, in Dr. Murphy's opinion, is here implicated.

Dr. Philipson: I have only experience of two cases treated by pressure, and, in both of these, the pulsation stopped suddenly. In regard to failure of ligature of the external iliac, we must remember that this femoral artery had been cured of aneurism before, and that, in all likelihood, the collateral circulation was strongly developed.

Dr. Drummond: Would Dr. Murphy tell us on what grounds he considers the condition in the 4th case one of aneurism at all?

Dr. Murphy: I regret, Sir, that no speaker has alluded to the treatment of case I., as it is somewhat unusual. In reply to Dr. Philipson, the pulsation stopped suddenly in case III. during the application of pressure, forming the *passive clot* of Broca. While in case I., the pulsation disappeared very gradually, forming the *active clot* of the same writer. As regards your explanation, Mr. President, of the failure of the ligation of the iliac, perhaps I did not make it sufficiently clear that the aneurism had been cured 18 months previously by pressure, and you will probably agree with me that the increased collateral circulation was the principal factor. Finally, as regards Dr. Drummond's query as to why I consider case IV. an aneurism. As I am open to conviction, and have already detained the Society so long, I may perhaps ask him first to give his reasons why he considers it is not one, and then I shall be happy to reply to them.

MALIGNANT STRICTURE OF COLON.

Mr. Black: This specimen was removed, *post-mortem*, from a man, 65 years of age. The patient, whom I saw in the absence of Mr. Page, his usual medical attendant, had, for a long time, suffered from obstinate constipation, for which he was in the habit of taking Epsom salts, with relief. At the time I first saw him, he complained of great pain in the right iliac fossa, and the bowels had not been moved for several days. There was occasional vomiting, which was not stercoraceous, and these were all the symptoms. Epsom salts, in large doses, we tried, and, afterwards, croton oil and enemata, but without result; and, after several days of most acute suffering, the man died. *Post mortem.*—This malignant stricture was found completely occluding the descending colon a little above the sigmoid flexure; and, here it is worthy of note, that the patient had never once complained of pain in the left side, the pain being invariably referred, as I have said, to the right iliac fossa. I have brought this case before the Society to have the opinion of the members on the point of the treatment. Did we do right in relying solely on medical treatment, or should a surgical operation have been performed?

Dr. Philipson: I saw this case with Mr. Black, and the great point of difficulty was in localising the seat of the stricture.

Dr. Peart: Was the diagnosis of malignant stricture made *post* or *ante-mortem?*

Dr. Campbell: This case has considerable interest to me, from its resemblance to one I recently had under my own care. In my case, the patient had been for years of a constipated habit, and the time came when the usual remedies would not act. The medical gentlemen in attendance gave some drops of croton oil without effect, and then Dr. Gibb saw the case. There had been then some vomiting, but no very urgent symptoms. Over the right iliac fossa there was a circumscribed area hard to the touch, and dull on percussion. This, it was thought, might be a tumour springing from the bone. The man lived for nearly three weeks after complete stoppage of the bowels, and, *post-mortem*, was found a stricture of the descending colon, immediately below the splenic flexure; and the tumour on the right side was found to consist of hard fæcal accumulation in the small intestine, above the ileo-cæcal valve. In this case, the age of the patient (70 years) seemed to indicate malignant disease, but no operation was ever mentioned.

Mr. Black: In answer to Dr. Peart, I may say that the opinion that the case was one of malignancy was formed before the death of the patient.

SOLID TUMOUR OF OVARY.

Dr. Jas. Drummond:—This large tumour, which I show, was removed, *post-mortem*, from a woman who died of pneumonia. The tumour had nothing whatever to do with the patient's death, and she had always been a very healthy woman, and had never complained of any inconvenience from this pelvic growth. The tumour had a pedical of two or three inches long, springing from the right cornu of the uterus.

Dr. David Drummond: From the naked eye appearance, I should say that this growth was a fibro-chondroma. I have not examined it microscopically.

RUPTURE OF CHORDÆ TENDINEÆ.

Dr. Oliver:—This rather rare specimen was removed from the body of a young man, aged 35 years, who, previously a striker in an iron factory, and lately a cabman, had been for many years past very intemperate. At the age of five he had rheumatism. From this he said he made a good recovery, remaining well until about five years ago, when he was an inmate of the Infirmary, under Dr. Philipson's care for heart disease. Admitted into the Infirmary, under my care, on the 5th of August last, for very urgent dyspnœa, I found him the subject of aortic and mitral regurgitation (double murmurs being heard at the aortic orifice) and also of œdema of lung. The pulse was markedly water-hammer in character, and quick. There was no albuminuria. Under the influence of rest and small doses of convallaria, patient improved; his breathing became so easy that he could occupy the recumbent position in bed, and the pulse ratio fell. At my visit on the 23rd of August, I found him sitting up in bed reading the newspaper feeling, as he said, very well. Soon after I left the ward, he ate a quantity of unripe fruit, which, a few hours after, was followed by vomiting. Shortly after this he was seized with the most urgent dyspnœa, with a sense of great precordial uneasiness, and when seen by the House Physician, was found to be cold, covered with a clammy sweat, and with a weak, small pulse. His temperature, taken before these latter symptoms set in, had run up from the normal to 102·5. He died at two a.m. on the morning of the 24th. At the *post-mortem*, the lungs were found to be, in places, the seat of œdema, and at other places, of red hepatization; the left ventricle of the heart is, as you see, hypertrophied and dilated; the aortic valves are incompetent; one of the cusps is puckered and thickened; the right mitral cusp is the seat of thickening and ulceration; and the chordæ tendineæ which stretch from its apex to a large musculus papillarus on the floor of the ventricle, are seen to be ruptured. Nearly all the chordæ tendineæ were covered with loose granulation material or vegetations, and were extremely soft and friable. I am inclined

to think that, in the act of vomiting, when undue strain was put upon the heart, the chordæ tendineæ already softened as the result of the inflammation which led up to the disposition of the fresh vegetation-like substance, were unable to resist the undue strain put upon the mitral valves, hence their rupture, and with that the sudden urgent dyspnœa, greater mitral regurgitation, and death a few hours after. I have searched medical literature for the record of a similar case, but so far have not been successful in finding one.

POPLITEAL ANEURISM.

Dr. Murphy: This specimen is the knee of a patient, æt 37, containing a ruptured popliteal aneurism, which I had to treat by amputation of the thigh ten day ago. He was admitted into the Sunderland Infirmary, under my care, on the previous night, with the history of having had a pulsating tumour in the popliteal space for a month, which, on the Sunday, three days before I saw him, suddenly became much larger, with very great exacerbation of the pain. The popliteal space was enormously enlarged with a very hard and indistinct mass, in parts of which feeble distensible pulsation could be detected; the skin was intensely inflamed, large bullæ having formed, and, at one place, appeared on the point of giving way. No pulsation could be detected in the tibials, the leg was markedly œdematous and cold, and the skin mottled. Under the circumstances, ruptured popliteal aneurism was diagnosed, and amputation seemed the only chance of saving the poor fellow's life. Having applied a tourniquet, I, however, made an exploratory incision, and turned out about 20 ounces of dark soft coagulum, and then found both ends of the artery near the seat of rupture, on the inside of the sac next the joint. Owing to the great disorganization of the parts, no course was left open to me but amputation, which I at once performed, and the wound is now nearly healed; and, in a few days, I hope the man will be out of bed.

ADHERENT PERICARDIUM AS A CAUSE OF CARDIAC DISEASE,

By GEORGE HARE PHILIPSON, M.A., M.D., D.C.L., F.R.C.P. ; Senior Physician to the Newcastle-upon-Tyne Infirmary ; Professor of Medicine in the University of Durham, &c.

Death from adherent pericardium is far from uncommon, yet it has not received, I think, that attention which its importance demands. For if, indeed, such adhesions constitute one of the causes of cardiac disease, the fact deserves more full recognition, since it affords an explanation of heart symptoms where the more ordinary and well-marked signs are wanting. I do not find, however, in referring to the standard text books on medicine, that mention is made of adherent pericardium as one of the causes which lead to impairment of the heart's action, with the usual accompaniments of venous congestion and dropsy.

My own teaching, for many years, has been that the simple pericardial adhesions produce no visible ill consequences, and my judgment has been formed from the fact of their frequent discovery in persons who had died by accident, or from other affections than those of the heart. At the same time, I have been in the habit of showing how the results of a chronic pericarditis, displayed by a dense thickening of the membrane, and by inseparable adhesions to the muscular tissue of the heart, do eventuate in cardiac disease.

In pre-auscultatory times, authors attached great importance to this condition. Thus Morgagni mentions cases where patients suffered œdema of the lower extremities, abdominal and thoracic effusion, cough, &c., and these he found, after death, to be the subjects of complete obliteration of the pericardial cavity. Baillie also says that when the adhesions are close, and have existed generally over the surface of the heart, the following symptoms have been observed, viz. : a sense of oppression, difficulty of breathing, &c. Other writers have spoken in the same way, but, as they have failed to mention, clearly, the state of the valves, their opinion must be considered of little value, especially as at that time they had no knowledge of the auscultatory signs of valvular derangement.

It would probably be the experience of most of the Physicians of the present day that, in the majority of cases, where patients have died of heart disease, and where, after death, exceedingly tough pericardial adhesions have been found, there have also been present the remains of an endocarditis and valvular inflammation. Still, I believe, there do remain some exceptional cases of heart disease where the pericardial adhesion is the only morbid condition discoverable, and in which we must, therefore, regard this as the cause of the symptoms.

We know that in consequence of an inflammation of the heart, all its tissues may be involved, and that a pericarditis, a myocarditis, or an endocarditis may result. To the latter we attach most importance, since it deranges the valves, and their altered action can be discerned by the ear during life. Also, an inflammation of the muscle is by no means uncommon. In acute pericarditis, there is frequently observed a layer of muscle beneath the inflamed surface, having an unhealthy colour and consistence; and, as a result of its implication, we may find, in after years, an actual streaking of the muscle, with adventitious fibrous material; or, as a simple consequence of the softening, which occurs during the inflammation, a dilatation of the cavities.

Then, just as an endocarditis or myocarditis may lead to future mischief, so may a pericarditis. The layer of adhesive matter which has been deposited around the heart compresses its muscular tissue, and embarrasses both systolic and diastolic movements, but, more particularly, the latter. Although, for a time, the vessels adapt themselves to the cavities from which they arise, and blood passes for a time with tolerable freedom, yet, before long, the heart becomes encumbered, and embarrassed distension of the veins follows, and dropsy results. Later, obliteration of the cavity of the pericardium causes diminution of the heart and great vessels.

It is well, therefore, to look at every one of the three forms of inflammation separately, and then we can be better prepared to give to each its due share in the production of the fatal symptoms, when we meet with them combined. And this is not always so easy a task. Thus, in these cases of adhesion, it may not be so much the constrictive force which has acted injuriously on the heart, as the fact of the muscular tissue having become involved in the inflammatory process, just as in the analogous case of the lung, where, in one case, the organ may be found enveloped in an enormously thick cartilage-like pleura, and, in another in association with this, the lung itself may have become included in the inflammatory process, and undergone the change known as Cirrhosis. Still, should the muscular wall altogether escape, there can be little doubt that these tough pericardial adhesions, when occurring at an early period of life, do impede the heart's action, and, in all probability, its growth. It may be that the position of the adhesions may cause a difference, in this respect, and thus the result vary according as one portion or another is bound tight. As a rule, the greatest thickening is in front, so as to affect the right auricle and ventricle.

I give three examples of cases where death was due, apparently, to adherent pericardium.

Case I.—Edward C., aged nine. He had always been a sickly boy. Had never had rheumatism. Had suffered for six weeks

with the symptoms of cardiac disease, such as difficulty of breathing, dropsy, &c. He experienced considerable difficulty in lying down, his favourite position in bed was on his hands and knees. On examining the heart, much surprise was felt at hearing no murmur, the sounds appearing natural. The pulse was small and usually about 100, and the respiration was generally about 46. He was prescribed the usual remedies for cardiac dropsy, and obtained considerable relief, so that he was able to leave his bed and lie down at night. He subsequently became worse as regards his breathing, so that, when sitting up, he preferred hanging his arms over a table. He afterwards had more difficulty in breathing, and his face became livid, in fact, sometimes, it became quite blue.

The *post-mortem* examination showed a universally adherent pericardium, much thickened by adventitious inflammatory matter, which also closely surrounded the roots of the vessels. The pericardium, together with the false membranes was as thick as the walls of the heart, the outer layer being toughest, and the inner softest, as though the inflammatory process had gone on from without to within. The left ventricle was rather thin and small, but the muscle was good. The right ventricle, where the pericardium was the thickest and the most adherent, had its walls infiltrated with fibrous material; and the right auricle, in like manner, had its walls indurated. The pulmonary artery was of normal size. The tricuspid, mitral, and aortic valves were quite healthy.

Case II.—Ellen A., aged 16. When seven years of age had rheumatism, and had suffered occasionally from dyspnœa ever since, The other symptoms were indicative of cardiac disease. The face was livid, the legs were œdematous, and the abdomen fluctuated with some fluid. The heart sounds were normal; the urine was not albuminous. She was ordered to take diuretic medicine, and was considerably relieved. Subsequently, the dropsy increased in the abdomen, and paracentesis, by means of Southey's trocar, was had recourse to. The abdomen gradually refilled.

The *post-mortem* examination showed the pericardium to be universally adherent, so as to be quite inseparable from the structure of the heart. This was especially so in front, and over the right auricle, where the thickened pericardium and muscle were incorporated. The organ was smaller than usual, for the age. The valves were quite healthy.

Case III.—Henry W., aged 24, He had been in indifferent health from boyhood. He used to get short-breathed, livid in the face, and his hands became blue and cold. About three years before his death, these symptoms became aggravated; on exertion, his breath became very hurried, and, at the same time, his face, hands, and surface, assumed a blue hue; occasionally his ankles

would swell. On examination of the heart, the sounds were more obscure than natural, but no bruit was discoverable in any part. The symptoms gradually became more permanent, and the abdomen became distended with fluid, which was removed by paracentesis. The fluid soon collected again, the breathing became more difficult, and the blueness of the body increased, and so he died.

The *post-mortem* examination revealed the pericardium, universally adherent to the heart, immensely thickened, especially at the right side, where the right auricle and ventricle had over them a plateau of ossific deposit. The endocardium showed no trace of any inflammation, and the valves were quite healthy.

A careful consideration of these cases would incline me to offer the proposition that, in a well-marked case of disease, with cardiac symptoms, in young persons, without any valvular murmur, pericardial adhesion may be fairly expected.

Of course, in older persons, we should look rather to degeneration of muscular tissue.

Dr. Gibson: What, in Dr. Philipson's opinion, was the cause of the great disproportion, in the first case, between the pulse rates and respirations?

Dr. Drummond: And I should like to ask Dr. Philipson what, in his opinion, is the manner in which adherent pericardium leads to a fatal issue, and, further, I would ask by what symptoms are we to diagnose the condition referred to?

Dr. Oliver: I quite agree with others that retraction of the intercostal spaces is not a symptom to be much relied upon. It would, indeed, be difficult to lay down any definite list of symptoms by which the condition might be diagnosed. But, generally, I think you have all the symptoms of valvular disease of the heart without any murmur, and, when you have all these symptoms without any murmur, I think you are justified in diagnosing adherent pericardium, and we have to thank Dr. Philipson for his lucid exposition of the dangers of the condition.

Dr. Philipson: In reply to Dr. Gibson, I have to say that, at the *post-mortem*, we found nothing in the lungs to account for the quickened respirations. In regard to diagnosis, no physical signs are absolutely diagnostic. Sometimes one is led to suspect the condition from the painful dyspnœa unaccompanied by any murmur. I have, at present, a case illustrative of this. This case was sent to me from the country for my opinion. The two medical gentlemen who had already seen him agreeing that the symptoms were the symptoms of cardiac disease, but no murmur could be detected. I examined the lad very carefully, and, in addition to the other symptoms, found slight œdema, but no albumen. I diagnosed this a case of adherent pericardium, and believe that subsequent events will confirm that opinion.

ON PERIPHERAL NEURITIS.

(First Paper.)

By DAVID DRUMMOND, M.D., Physician and Pathologist to Newcastle Infirmary.

Mr. President and Gentlemen,

During the present session, with the indulgence and permission of the members, I hope to place before the Society, in a series of papers, the results of my observations upon a large number of cases of paralysis from inflammation of the peripheral nerve trunks, which have come under my notice during the past three years. At the outset, I must tender my thanks to those members who, in their kindness, have supplied me with a considerable proportion of the material that forms the basis of my communication. The subject of paralysis from neuritis is probably the most important, and certainly is the most recent development of neurological science; indeed, I am inclined to think that it is the most important advance made in the scope of practical medicine during the past five years. Like myxœdema, Charcot's disease of the joints, and other conditions recently cleared up, it has come upon the profession almost in the light of a new disease. The text-books fail to furnish us with any reliable information; in truth, they are well nigh silent upon the subject, and when candidates for the final examinations, who are always eager for information upon any subject that is receiving special attention, as their examination is approaching, ask where they can read up peripheral neuritis, one is compelled to refer them to the current medical journals, in which isolated papers are to be found, but more especially to Buzzard's Harveian lectures, published in the *Lancet*, November 28th, 1885; for to this author we are indebted for most of the published information; or, to speak more correctly, Dr. Buzzard has collated in the lectures referred to, the most important clinical points that go to make up the group of peripheral paralysis. That the cases are numerous there can be no doubt, and the marvel is that they have so long escaped recognition, considering the astute and watchful supervision begotten of the keen competition of the present day. Until recently, the observations upon peripheral paralysis and neuritis were well nigh exclusively confined to the various forms of neuralgia, and lesions, the outcome of traumatic inflammations, the invasion of neighbouring disease, or accidents, and, of course, a few well-known forms, such as Bell's paralysis, a category which would include, for example, paralysis from pressure exerted by tumours, crushed and divided nerves, and so forth, while the more obscure and true medical cases were mistaken for examples of progressive muscular atrophy, acute or chronic anterior polio-myelitis, acute disseminated myelitis, locomotor ataxy, hysterical paralysis, and not a few were relegated to, or absorbed by, the surgeon as cases of chronic inflammations of tendons or their sheaths, a mistake that has proved, on occasions, most disastrous,

as limbs, I fear, have been amputated, under the impression that the contracted fingers are permanently disabled. And it is only too obvious, from a careful perusal of the weekly medical journals, that this diagnostic confusion is still the order of the day, as cases are frequently reported in which recovery is claimed for serious organic central lesions generally taught to be beyond the aid of our science. Nor is the cause of the confusion far to seek, as a glance at the great variety in distribution, as well as degree, of the paralysis may easily suggest. Few would be likely to recognize a connection between a very mild and transient attack of Bell's paralysis of the *Portio dura* from cold, and a rapidly developed paraplegia, with complete and permanent paralysis, with wasting, during the progress of which the patient may succumb. Nor does it appear easy to place in the same pathological category a case of paralysis of the extensors of one or two fingers, and a lesion that paralyses the sensory and motor fibres of nearly all the nerves of the arms and legs together, with double facial paralysis and ptosis of one or both lids, and paralysis of the palate. But all these may be examples of peripheral neuritis. Again, there is a marked tendency in the cases to depart from the supposed type of a peripheral paralysis; thus, in a large proportion of the cases, the paralysis is confined to the motor nerves, and there is little or no wasting, and the electrical reaction may or may not be altered; for, it may be well to recollect, when we speak of a typical case, if, indeed, it be wise to seek for type in disease—*pain on pressure; hyperalgesia, with areas of analgesia; motor paralysis, with wasting of the muscles and altered electrical excitability; and more or less vasomotor and trophic disturbances in the skin* (swelling, eruptions, etc.), are generally included. Further, a brief consideration of the causes at work in producing neuritis may serve to emphasize the great difficulty there is in bringing into one group all the numerous varieties met with. Unfortunately, our present knowledge will only permit us to grope somewhat blindly in the domain of etiology, but a few of the causes are sufficiently obvious to allow us to speak with tolerable certainty. In my experience, the most common cause of peripheral neuritis is alcohol; then cold and rheumatism and syphilis, gout, diphtheria, and traumatism; but, in a considerable number of instances, it is impossible to give the cause a name. It will at once be recognized how little resemblance there is between an alcoholic and a lead case: the former characterized by paralysis of the legs, with pain in the muscles; whilst the latter is shown by drop-wrist, and a total absence of sensory disturbances. Nor is it an easier matter to group an alcoholic case in which the upper extremities are chiefly affected with a plumbic case, inasmuch as the *supinator longus* may be attacked in the former but escapes in the latter. Thus it appears that cases of peripheral paralysis differ widely, and well-nigh defy an attempt at classification.

(To be continued.)

NORTHUMBERLAND AND DURHAM MEDICAL SOCIETY.

SESSION 1886-7.

NOVEMBER MEETING.

The Second Monthly Meeting of this Session was held in the Library of the Newcastle-upon-Tyne Infirmary, on the evening of Thursday, November 11th, 1886, Dr. Hume, President, in the Chair.

NEW MEMBERS ELECTED.

The following gentlemen were elected members of the Society:—

H. W. Dixon, M.B., L.R.C.S., Gateshead.
Thos. Kirkwood, M.B., C.M., Newcastle-upon-Tyne.
Arthur Cross, M.B., C.M., Fence Houses.
J. Johnstone Weir, M.B., C.M., Jarrow.
H. S. Baumgartner, M.B., M.S., M.R.C.S., Newcastle-upon-Tyne.

CASE OF GASTROSTOMY.

Dr. Hume: This woman, between 30 and 40 years of age, was the subject of a traumatic stricture of the œsophagus, due to the swallowing of strong Hydrochloric Acid. The operation of Gastrostomy was performed by making a straight incision in the abdominal wall, and separating the fibres of the rectus muscle near its outer border. The peritoneum was divided only to a limited extent, so that the opening made was quite filled up by the portion of the stomach wall brought forward, and then three or four silkworm gut sutures were passed through the abdominal wall and outer coats of the stomach. The operation was performed in two stages, the opening of the stomach being postponed till the fifth day. Since then, the patient has been fed in great part by the stomach opening, and there has, at no time, been any escape of the gastric juice or food; and, since the operation, the condition of the patient has steadily improved.

SUPRA-PUBIC LITHOTOMY.

Dr. HUME: The patient from whom I removed this stone was admitted into the Infirmary here suffering from severe cystitis. From the history, stone was suspected, a sound was passed, and stone detected in the bladder. Measured with the lithotrite, I made it out to be $1\frac{1}{2}$ inches, or thereabouts, in its shortest diameter; and, from the feel of the body, I concluded that it was a mulberry calculus. From a consideration of all the circumstances, I concluded that the stone was too large to crush; and, passing by the lateral operation, I determined to remove by the supra-pubic method. The operation was performed on the modern lines. A rectal bag was placed in the rectum, and about 12 ounces of water injected into it, a like quantity of water being injected into the bladder, when it was found that the bladder reached half-way up to the umbilicus. An incision was now made through the skin and sub-cutaneous tissue; and, following the advice of Sir HENRY THOMPSON, the fat over the bladder was carefully scraped through, and the viscus escaped. A sharp hook was then inserted into the bladder to steady it, which allowed a considerable quantity of water to escape. A forefinger was placed over the hole, and gradually insinuated into the interior; and then the forefinger of the other hand was slipped in alongside the other, and the stone lifted out between them. The result obtained in this case has led me to institute a comparison between the supra-pubic and lateral operations of lithotomy. In this case, the man stayed in the hospital eight weeks, and that is a very long time compared with what we should expect in lateral lithotomy; but, on the other hand, the man suffered very much less than we usually find patients to suffer under the lateral operation. The wound, you will see here, is a perfectly hard cicatrix, not likely to be the seat of a hernia in the future.

CASE OF LOCOMOTOR ATAXIA.

Mr. BLACK: This patient is 47 years of age, and is an example of an exceedingly rapid form of Locomotor Ataxia, his illness dating only from March of this year. In the early part of that month he consulted me, complaining of gastric symptoms, These were very troublesome, and have steadily resisted all treatment. His pupils were extremely small and pin-point in size, and they are now well-marked examples of the ARGYLE ROBERTSON pupil. His patella tendon reflexes were absent, and, subsequently, he developed shooting pains in the back and limbs, and the girdle pain of this disease. In July, he first complained of impaired sensation in the legs; and though, at that time, he was able to walk well, his decline since then has been exceedingly rapid, until now he cannot stand without support. I have shown him for the purpose of eliciting from the members any suggestions as to what treatment should be adopted.

Dr. PHILIPSON: I would suggest a trial of nitrate of silver, which I have found of great value in such cases where the gastric symptoms were marked.

Dr. PEART: I have seen great benefit, in some cases of spinal paralysis, through giving a combination of medicines which was prescribed by Sir ASTLEY COOPER, namely, Bichloride of Mercury dissolved in compound tincture of Cinchona (with the addition of a few drops of acid, if necessary), at the same time rubbing in a strong croton oil liniment over the whole length of the spine. These cases were, however, not cases of locomotor ataxia in which my results have been no better than those recorded by others.

Dr. EMBLETON: I think that as much benefit will be derived from a general tonic treatment, with counter-irritation to spine, as by any other method.

Dr. GIBSON: I would point out that we have an enormous power in the Perchloride of Mercury, especially in combination with Belladonna; and, should they fail, I would recommend a trial of Strychnia.

Dr. MORISON: Since Mr. BLACK's leanings are surgical, I would commend to him treatment by stretching the sciatic nerve. It is a treatment which has been a good deal practised in Germany, and with success.

Dr. ANDERSON: Before Mr. BLACK again reports on this case, I should advise him to give Arsenic a fair trial.

Mr. BLACK: I may say that I have tried Nitrate of Silver, Tribasic Phosphate of Silver, and anti-specific remedies, all without avail. I think, however, that I will follow Dr. PEART's advice, and report to another meeting.

EXCISION OF HIP AND SUBPERIOSTEAL RESECTION OF FEMUR.

Mr. BLACK: These two cases, Sir, are very similar in character, one being more grave than the other.

This little fellow was admitted into the Children's Hospital under my care, in June, 1885, suffering from Disease of the Hip. Prior to admission, he had a severe time of it, having gone the round of all the bonesetters in the neighbourhood. When admitted, he was suffering such pain as to render chloroform necessary, before any examination could be made. His case was evidently one of the usual character, and was treated by rest, extension, and counter-irritation; abscess developed, and excision was determined on. On opening the joint, a large quantity of pus escaped; and, on insertion of the finger, the head and neck of the

femur were found lying in fragments in the cavity. In adducting the limb, to throw out the upper extremity of the bone, a snap was heard, and it was then found that the femur had broken at the junction of the upper and middle thirds. Examination of the upper fragment showed the periosteum separated on its front and internal surfaces. It was carefully peeled off the external and posterior surfaces, and this fragment of the femur, measuring $3\frac{1}{2}$ inches, was removed. The case was treated on Listerian principles, and did remarkably well, without a bad symptom, and the boy has now a very useful limb without much shortening.

This second case is of a more severe type. He was admitted into Hospital under my care, in October, 1885. He had almost the same symptoms as the other case, and received exactly the same treatment. In adducting his limb, the femur broke, not at its upper, but at its lower extremity, just above the epiphysis. The periosteum was found separated from the bone all round, except posteriorly, and it was carefully scraped off this surface with the finger-nail; and the entire upper fragment, consisting of head, neck, and shaft, removed. I pass the fragment round, and you will see that it is extensively diseased, and that removal was the right procedure to adopt. The case, treated according to Listerism, never had a bad symptom. There is now, nine months after the operation, a new bone formed, and the boy has a very useful limb, with very little shortening.

PERICÆCAL ABSCESS.

Dr. Anderson: This man has been the subject of a very peculiar derangement, having its origin in a severe attack of typhlitis. At the beginning, the diagnosis was extremely difficult to make, and it was not possible to say whether the attack arose from impacted fæces, or a foreign body. A peri-typhlitis supervened, however, and an abscess pointed just over the right sacro-iliac synchondrosis. This abscess I opened, and the history of the case was as I will now briefly relate.

On the 9th of June last, this man, a miner, was going to his work early in the morning, when he was seized with a most severe pain in the right side, and, two hours afterwards, he vomited. He was taken home, and passed through the stages of a very severe attack of typhlitis and peri-typhlitis. Vomiting was a marked and most persistent symptom for about a month; and, after the more acute symptoms had subsided, there remained great prostration. At this time, Dr. Oliver examined the patient with me, and we thought that the low vitality might be due to some hypostatic congestion of the bases of the lungs which was present; but, at a second consultation, we came to the conclusion that the condition was due to some deep-seated matter. The case went on for some time very much in this way, the vomiting still persisting,

with a high temperature of from 102° to 103°, until the symptoms became most urgent. But, just at this time, fortunately, I detected the pointing to which I have alluded. I opened into the abscess, with relief of the symptoms, though, even yet, he was far from recovery. He was sent away at the end of a month to Whitley, and remained there about four or five weeks; but, on his return home, he still complained of a pain in his right groin, Nothing, however, could be detected there; but a blister, which had heen applied to the back, caused the sinus to re-open, where I had opened into the abscess cavity behind. This I kept discharging by the free use of poultices; and, on the 20th of October, in probing the wound, I came upon a small obstruction, which, after considerable difficulty, I succeeded in extracting, and it proved what I consider to be a fish-bone. Unfortunately, I broke the specimen while examining it, and lost about $\frac{4}{5}$ of it, but I retained this small piece which remained in the forceps, and which I have not the slightest doubt is a portion of a fish-bone, which had perforated the cæcum, and caused all the trouble from which the man suffered.

Dr. Oliver: At the second consultation which I had on this case with Dr. Anderson, it was quite evident from the continued high temperature, the rapid pulse, and deep-seated pain, and, especially, the pain in the back running round into the groin and down the leg, that there was some collection of matter round about the cæcum or vermiform appendage, and this was confirmed ten days later when the pointing occurred in the right lumbar region. I think that Dr. Anderson said that the pus evacuated was laudable, but my distinct recollection is that it was extremely fœtid, so much so, as to give rise to the question if there was not a perforation of the bowel communicating with the abscess cavity. The patient made a good recovery, and was sent to Whitley, where he remained five weeks. His symptoms, on his return, were as Dr. Anderson has described; but, the day after the application of the blister, the cicatrix of the old wound, which, up till then, had been firmly adherent to the bone, gave way, and a sinus formed, from which, in a few days, the foreign body was removed which Dr. Anderson has shown, and, since then, the cure has been complete. The case is very interesting from the fact that several similar cases have recently been shown before the Society; and I remember that, last year, Dr. Jas. Drummond, of South Shields, exhibited one in which a stone had perforated the vermiform appendage, and was discharged through the back.

Mr. Williamson: I must take exception to the assumption which, it appears to me, that Dr. Oliver's conveys, that pus may become fæculent from mere contiguity to the bowel, or by an interchange of gases from the bowel. To have fæculent matter, I hold that you must have an actual perforation communicating

with the gut; or, in such a case as described, the fine perforating body must have carried through with it a small portion of fæces, and so have infected the matter outside.

Dr. Adamson: There is always very great difficulty in the diagnosis of these cases. It has occurred over and over again that perforation has taken place at this point, and the perforating body is generally very small. Very large bodies may pass through the ileo-cæcal valve; indeed, whole sets of false teeth have been known to pass through the orifice, and be discharged per rectum.

Dr. Newcombe: The diagnosis of these cases always is obscure, and one is always doubtful what is the best treatment to adopt. I have in my mind, at present, the case of a woman who, 16 years ago, was operated upon for strangulated hernia. Six months afterwards she was confined, and the bowels, from pressure, protruded through the cicatrix, and, since then, she has gone about with the bowels outside forming a large tumour. Last June, I found her suffering great pain over the spine of the ileum, and there was sickness and great prostration. Laterally I aspirated an abscess which formed over the seat of pain, drawing off some fœtid pus; and, at a subsequent time, I opened the abscess, giving exit to pus, which was very fœtid; because, as I believe, and contrary to the hypothesis of Mr. Williamson, of its contact with the bowels. Some time after this, I saw the case of a young lady, who had all the symptoms of obstruction of the bowels. Under treatment, these symptoms subsided, and then a large swelling appeared over the liver. The swelling had all the appearance and feel of a cyst, but, on being opened into, it was found to contain pus.

Dr. Anderson: I cannot agree with Mr. Williamson that the fœtor was due to any escape of matter from the bowels. There certainly was no odour of fæces from the opening of the sinus.

A SECOND CASE OF SUPRA-PUBIC LITHOTOMY.

Dr. Hume: This calculus was removed ten days ago from an old man 64 years of age. The stone is a mulberry calculus, and the points to be noted were these:—The patient had suffered for a good many years from irritability of the bladder, and for the last four years the irritability had been very great. I sounded him, and from the ring of the stone there was no doubt that it was an oxalate of lime. The man was very healthy for his years, but there was enlargement of the prostrate, especially of the left lobe, and though the stone was well suited as regards its size for a lateral operation, the prostatic enlargement was considered an argument against that method of procedure. It was not a case for lithotrity, and, therfore, the supra-pubic operation was determined upon. It was performed, and I may add that the man never even

looked ill after the operation. The temperature never rose above 99, and he made an uninterrupted recovery. My purpose in bringing this case before you is to show that if we are not to confine the supra-pubic operation to stones of large size only then this was a typical case in which to perform it. Such stones are always dangerous to crush, especially in old subjects, and the choice then lay between lateral and supra-pubic lithotomy. Where there is enlarged prostrate, there is also enlargement of the veins of gland, and in performing the lateral operation in a man past middle life, suffering from prostatic enlargement, you have just the condition where you may look for very considerable oozing after operation. The lateral operation is certainly very rapidly performed, but no matter how carefully you operate, you must sever some considerable vessels. By the supra-pubic operation, however, I was enabled to operate with almost no bleeding at all, and this in spite of the venous engorgement which, in this case, threatened considerable trouble. Hæmorrhage from this source was, however, effectually checked during the operation by the use of PEAN'S forceps. It was very difficult to tie the veins on account of the depth of the wound, and it was found better to leave the forceps on, and the operation was completed by opening the bladder as in my first case.

In reviewing the merits of the two operations, therefore, I have to admit that, in the matter of drainage, the ease and completeness with which this is secured in the lateral operation is one great point in favour of our operating by that method, but there are counteracting advantages in the supra-pubic operation which I have already sufficiently indicated. CHESELDEN gave up supra-pubic operation because of the fear of extravasation of urine. Now, however, with improved methods of operating, and especially by the use of the rectal bag which lifts the viscus easily within reach, we need not fear from this cause, and danger to the peretoneum is, at the same time, completely obviated.

Dr. MORISON: I think that Dr. HUME is slightly unfair in giving a bias to the supra-pubic operation. One good point of lateral lithotomy he has overlooked in speaking of prostatic enlargement, namely, the incision of the prostate, which, along with the irritation set up by the presence of the drainage tube might cause considerable contraction of the gland. In regard to profuse hæmorrage, CADGE only mentions one case where death took place from this cause following the lateral operation. But, apart from these considerations altogether, apart from its brilliancy and dash, it is much easier to perform lateral than supra-pubic lithotomy. Dr. HUME has, however, shown that the latter opperation is comparatively easy and quite safe; and, in case of large stones, or where there were special difficulties in the way of extracting

the stone by usual methods, I should have no hesitation in adopting the high operation ; but, in young people, or where the stone was not of great size, I should certainly prefer the lateral.

Dr. Hume : I do not wish for a moment to suggest that supra-pubic should supplant lateral lithotomy. We must not too readily desert an old friend. In my first case I admit I made a mistake. Had I known as I know now the size and composition of the stone, unquestionably I should have crushed. The proposition put before the profession just now is that on the whole the supra-pubic is better than the lateral operation. In my second case, I think I did quite right, and I am convinced that my patient was better treated by supra-pubic than he would have been by lateral lithotomy.

FOREIGN BODY IN TRACHEA.

Dr. Morison : This small plum-stone I recently removed from the trachea of a child six years of age. After eating some fruit, the little patient had a sudden attack of dyspnœa, in which it was nearly asphyxiated. On recovering slightly, she said she had swallowed two plum-stones, and these, the medical gentleman who had been called in said, he had pushed down the throat. During that same night, however, the child had a second attack, in which the face became quite livid. Next morning, the doctor again saw her, and, for a week, she was treated for bronchitis. A week after the first attack the child was brought to me, the mother stating that it still had attacks of dyspnœa during the night ; and, on close examination, I discovered that there was still some obstruction to the breathing, and that this was accompanied by a cough of a distinctly croupy character. The episternal space, the epigastrium and intercostal spaces were retracted at each inspiration, and there was whistling to be heard over the upper part of the lungs on auscultation. I had no doubt, putting all the symptoms together, of the presence of a foreign body in the trachea, and proposed tracheotomy. In operating on such cases, Spence recommends that chloroform should be dispensed with, but I determined to give the anæsthetic in this case. I exposed the trachea, laid it bare all round, and drew it forward into the wound with a sharp hook. I then drew down the isthmus of the thyroid with a blunt hook, and opened the trachea. Taking the handle of the scalpel, I inserted it sloping into the wound in such a way as to guide the body easily out, should it be coughed up ; and, after waiting a little, I was rewarded with one or two slight coughs, and then a stronger effort was followed by a "blob," as the stone flew out of the wound and struck me in the face. A tracheotomy tube was now put into the wound to prevent a cellular emphysema, and, in a few days, the child was quite well.

Dr. Hume: Dr. Morison has raised one very important point, and that is the giving of chloroform. I well remember a case where a child died on the table. It had struggled during the administration of the anæsthetic, and the foreign body had got impacted in the glottis. I certainly feel very much more at home in performing tracheotomy without chloroform.

Dr. Morison: I invariably use chloroform, and have only had one death during the operation, and that not from any effect of the anæsthetic. With this solitary exception, all my cases have recovered from the immediate operation.

SERIES OF OVARIAN TUMOURS.

Dr. Limont: I shew here a series of ovarian tumours from patients under my care, who had been transferred to Mr. Page for operation.

Case I.—Ovarian Cystoma developing soon after confinement. Burst Cyst:—This tumour was removed from a patient, J. D., aged 32, who was admitted during August, 1886, complaining of abdominal swelling of eight months' duration. When younger, patient suffered, as many of these cases do, from severe pre-menstural pain. She has had eight children, the youngest of whom was nine months old when patient was admitted. Six weeks after her confinement she noticed the swelling in the right side; it was accompanied by much pain, and enlarged so quickly that when admitted she could not lie down; any attempt to do so producing great pain and dyspnœa. The irregular tumour and the presence of fluid in the peritoneum were easily made out, but no history could be obtained which would point to rupture of a cyst having taken place. The operation could not be performed at once, but with rest in bed and fomentations, all urgent symptoms disappeared. At the operation on the 30th September, the peritoneum was found to contain a large quantity of fluid, slightly glairy in character, and with numbers of the so-called ovarian cells. This large irregular tumour, with so many secondary cysts, was exposed. In the wall of one of the largest cysts was found a perforation, the size of a five shilling piece; the cyst, however, was not nearly emptied; for, as often happens in these cases, a smaller cyst protruded through the opening and blocked it up. The operation presented no special difficulties. The patient made an uninterrupted recovery; was out of bed on the 16th, and left Hospital on the 23rd day. Under one of the microscopes is a section showing the inner wall of the sac covered with columnar epithelium, and processes running inwards covered with the same epithelium.

Case II.—Ovarian Cystoma of very Rapid Growth:—The patient from whom this tumour was removed, was a girl, A. Q.,

aged 22, who was admitted in August, 1886, with a swelling of the abdomen, which she just noticed only three weeks previously. During the two months previous to admission she menstruated three times; before that she had been perfectly regular. When the patient was admitted, the tumour was very large, and was said to be increasing visibly day by day. Two days after admission, sudden pain in the epigastrium came on, with sickness and loss of appetite; the pulse rose to 125 and the temperature to 102·5, and the tumour increased so quickly in size that, in two days, the patient could not only not lie down in bed, but could not turn without help. Unfortunately, arrangements could not be made to have the operation done at once, but, on the 19th of August, the tumour was aspirated; six and-a-half pints of fluid were withdrawn, but the tumour was then still of considerable size. The fluid was clear and very slightly glairy. All pain, high temperature, and quick pulse disappeared, and patient could sleep comfortably in the recumbent posture. In 17 days, however, she had again to be tapped, when the same amount of fluid, but now more glairy, was withdrawn. Ovariotomy was performed by Mr. Page, on the 12th of September. There was considerable hæmorrhage during the removal of the lower part of the tumour, which consists of numberless small cysts. The upper part consists, as you see, of a large cyst, with very firm fibrous walls. Under the microscope, its nature is found to be the same as the preceding one. Patient recovered from the operation rapidly and uninterruptedly, and left Hospital on the 14th October.

Case III.—Ovarian Tumour developing soon after confinement:—M. S., aged 34, was admitted October 6th, 1886, complaining of swelling of the abdomen of about nine months duration. When younger, patient had severe pre-menstrual pain. She has had nine children and six abortions, the latter occurring mostly about the fourth month. She has always become pregnant immediately after suckling was discontinued, and has had no menstrual flow for 10 years. Her last child was born without difficulty nine months ago, and three weeks later she found there was a swelling at the lower part of the abdomen. The tumour was found to be freely movable in the abdomen. Its lowest part lay quite two inches above the brim of the pelvis, and a broad band, apparently omentum, could be felt passing on to its upper part. It was thus somewhat suggestive of a hydated cyst, but, with the patient under chloroform, a long pedicle could be felt passing from the right side of the uterus to the tumour. The operation was very easy, lasting only 18 minutes. There was only the adhesion felt during life at the upper part, and a small one on the posterior surface. The patient was out of bed on the ninth day, and left Hospital on the 16th, never having had any bad symptom. The tumour consists almost entirely of

one cyst. From the interior of this cyst are solid projections. A section of the material is to be seen under the microscope. It shows thick trabeculae formed of young actively growing tissue—very much resembling sarcomatous material—and spaces in which are cells and a gelatinous looking material. I should like the opinion of members as to the nature of this tumour. For my own part, I shall not be surprised to find a recurrence of the growth probably in the remaining ovary.

Case IV.—Ovarian Tumour of 15 to 17 Years' Duration:—S. S., aged 54, was admitted June 25th, 1886, with an abdominal swelling of 15 to 17 years' duration. When young, patient suffered from severe pre-menstrual pain. She had a number of abortions, and once a still-born child, but never a living child. It is 15 years since she was last pregnant, and about the same time since she had any menstrual discharge. About that time, she first noticed the lump in her left side. She says it has grown from time to time ever since. There is often severe pain in connection with it, which sometimes confines her to bed for a fortnight at a time. For the last year, has been able to do very little of her household work. About 16 years ago, she was a patient in the Glasgow Royal Infirmary, but got frightened, and came out after a consultation of the staff on her case. A year later, she was a patient in the Newcastle Infirmary; an ovarian tumour was diagnosed, but nothing was done. About 14 years ago, she was a patient of the Edinburgh Infirmary, and was told that "something might be done for her later." 11 years ago, in this Infirmary, the swelling was diagnosed as a fibroid. She struggled on for six years, and then the pain became so severe that she was obliged again to come to Hospital. On examining, by the bimanual method, with the patient under chloroform, the form and relations of the tumour could be very distinctly made out. It was a round, regular tumour, firmly fixed to the back of the uterus, which was of normal size. There was a broad, firm band passing from the side of the tumour to the pelvic wall in the situation of the left broad ligament. Examining, per rectum, a broad band could be felt passing from the floor of the pelvis on to the posterior surface of the tumour. The patient was operated on, on the 22nd July, by Mr. Page. On opening the abdomen, the relations were found exactly as made out before the operation. The tumour consisted chiefly of two cysts; the upper one contained a turbid, non-glairy fluid, in which was a large quantity of cholesterin; the lower one a clear, watery-looking fluid. The tumour had grown deeply down between the layers of the broad ligament. In order to free it, it was necessary to divide the peritoneum round the tumour, and then strip the peritoneum off the lower part of the tumour. When this was done, the tumour was free; and what threatened, at first, to be a very difficult, became a very easy operation. The

patient never had any bad symptoms after the operation. She left Hospital on September 1st, and has, for some time past, been doing all the work of a pretty large household. The interior of the cyst-wall, when fresh, showed:—(1.) Yellow caseous looking patches, probably old extravasations of blood. (2.) Small cysts. (3.) Masses of solid material. A section of one of these masses is placed under the microscope. It differs considerably in nature from the solid material found in Case III. In this case, well-developed fibrous tissue forms septa, which bound spaces; these spaces are lined by short irregularly-shaped cells, and contain cast-off cells and a gelatinous-looking material.

THE OCCURRENCE OF MENORRHAGIA OR METRORRHAGIA DURING THE FEBRILE STATE.

By ALFRED MANTLE, M.D.

In bringing before the notice of this Society the subject of menorrhagia or metrorrhagia as occurring during a febrile attack, I may, at the outset, say that my purpose in doing so is for the consideration of the best mode of treatment, when the circumstances of some such cases demand treatment.

It is necessary to make this proviso, because, most certainly, the majority of cases of menorrhagia or metrorrhagia occurring during a febrile disease require no treatment, the loss of blood may be considered to have a salutory effect upon the disease, and nature is probably doing what the practitioner of a generation ago considered the right course of treatment in all febrile diseases.

It is not an infrequent occurrence for zymotic diseases to be ushered in with hæmorrhage. This is frequently observed in the young, when scarlatina or measles is making its appearance, at which time the hæmorrhage is most often seen to take place from the nasal mucous membrane.

In older patients, epistaxis or hæmatemesis is occasionally observed at the onset or early in the course of the fever; whilst in others, and this is particularly the case with measles, scarlatina, small-pox, typhus, typhoid, yellow, and intermittent fevers, and sometimes in pneumonia, the hæmorrhage shows itself from the mucous membrane of the uterus.

In some cases, this may mean nothing more than the normal process of menstruation taking place, which may or may not have been hastened a few days by the pyrexial attack, and the amount of blood lost may not, necessarily, be in excess; but in the strong and plethoric, and particularly in small-pox, typhus, typhoid, and yellow fever, the loss may sometimes be excessive and perilous, demanding active treatment. In other instances, the hæmorrhage is quite unassociated with the normal menstrual act, when such cases may be said to be ordinary cases of uterine hæmorrhage or metrorrhagia induced by the febrile condition.

I believe, however, that by far the largest number of cases of uterine hæmorrhage, occurring during a febrile disease, take place at or near the proper menstrual period, the circumstances being favourable to an excessive loss of blood.

In considering what conditions are favourable to the development of menorrhagia or metrorrhagia during such an attack, we should remember that, in the early stages of fever, we have a quickened pulse with increased arterial tension.

Incidentally, I may remind you that, in normal menstruation, we have increased arterial pressure with slight pyrexia.

In the uterus, we have an organ with an unusually good blood-supply, and, moreover, it is the only organ in the body from which blood escapes normally as a physiological process. With an increased vascular tension, it is only what we might then expect for blood to escape more freely from the mucous membrane, which probably feels, and is most influenced by the increase of arterial pressure. A yet stronger factor, however, is probably at work in the causation of hæmorrhage in the febrile state, and it is the alteration in the character of the blood. What these alterations consist of, as yet, we know little or nothing; but, whilst it has been said that, in some fevers, there is an increase in the fibrin-forming constituents of the blood, undoubtedly, in others, there is a deficiency in these elements, and, consequently, a marked fluidity and want of coagulability is observed. I believe this to be the case in many of the zymotic fevers.

That the want of the properties of coagulation is not explained by its being menstrual blood, and due, possibly, to the action of the acidity of the vaginal mucus, is proved by the fact that blood coming from the intestinal mucous membrane, or which has been abstracted by the operation of venesection, has the same characters. Trousseau, when speaking of intestinal hæmorrhage during enteric fevers, says:* "At the autopsy of persons who have died of enteric fever, we often find bare mesenteric vessels at the bottom of the intestinal ulcerations. Hence, it might be supposed that these hæmorrhages are attributable to the rupture of a mesenteric vessel during the process by which the furuncular core is eliminated. Still, for the most part, if not always, this is not what occurs. Blood is exuded by the mucous surface exactly as it is in hæmatemesis and epistaxis, as well as in many other similar circumstances. The immediate cause of this sanguineous exhalation is an essential change in the blood, which is in a dissolved state, a fact you can verify by examining the blood abstracted from patients in our hospital wards . . . . . This particular condition of the blood is seen in a very high degree in the hæmorrhagic putrid fever, and in yellow fever.

"In scarlatina, diphtheria, measles, and small-pox, the blood is also generally in this dissolved state, and to it are attributable the intestinal, renal, and nasal hæmorrhages met with in them. So far is ulceration of the intestine from being a condition essential to the production of hæmorrhages, that they often come on at a period of the disease very far removed from that to which ulceration belongs."

The difficulty and sometimes impossibility of stopping bleeding in fevers was frequently experienced in the days when venesection, and the application of leeches, were much resorted to in the their

*Vol. II., page 332.

treatment. Only three years ago, I was called into consultation with a practitioner of the old school, who, having applied ten leeches to the chest of a child suffering from pneumonia, produced hæmorrhage which was quite uncontrollable, and proved fatal.

In these changes of the normal characters of the blood, together with the increased arterial tension, lies the explanation of the profuse menstrual discharge, or the occurrence of hæmorrhage apart from menstruation, during a febrile attack.

If the normal menstruation has not taken place recently, and should it not appear during the earlier stages of the fever, in all probability it will not appear during the after progress or convalescence of the disease, when the arterial pressure is lessened; but, occasionally, it does appear as a sequel to fevers, when it may be considered due to the changes in the blood alone.

I shall now relate two cases of menorrhagia which occurred, respectively, during typhoid fever and small-pox, and which, I may add, are the only two cases I can call to mind which required treatment.

In October, 1884, I was called to attend a lady, aged 40, the mother of five children, from whom I gathered the following history:—She had been at a pic-nic eight days' before, when she got her feet very wet. She had since had a good deal of shivering, and for three days previously, had suffered with severe neuralgia, for which I was consulted. I found her pulse very quick, and was convinced that the neuralgia was only a symptom. It was evening, and the temperature was 105°. There was a slight pleuritic note heard on the left side, and pain was complained of; the abdomen was somewhat distended and tender, and there were some ill-defined lenticular spots, of a rose colour, but no diarrhœa. Next day, the bowels were very loose, the stools being of a pea-soupy character; the temperature, in the morning, 104·6, and in the evening, 104·8. I diagnosed the case enteric fever. Three days' afterwards, I was informed that menstruation had taken place. I had been consulted by this lady two months' before, with reference to the menstrual loss being more than usual, and finding great regularity had persisted for five years, since her last child was born, and no history of miscarriage, and other symptoms being complained of, I considered the hæmorrhage due to the meno-pause. The following day being, as far as I could judge, the 12th day of the disease, the morning and evening temperature were nearly alike; the diarrhœa had ceased, but I learned the discharge of blood was considerable. There was low, muttering delirium almost constantly. Next morning, finding the patient considerably weaker, I became anxious about the loss of blood; and seeing the enormous quantity of dark liquid blood which, according to my orders, had been saved, having been wrung out of the diapers, I determined to administer hæmostatics. Full

doses of ergot and gallic acid to be given at frequent intervals, and the patient was given champagne and nourishment frequently. My evening visit found my patient's temperature slightly lower, the pulse greatly softened, but the hæmorrhage quite as free. I was anxious for some one to share the responsibility of the case with me, and, at the friends' wish, I asked Dr. Gibb to consult with me. Next morning, finding the usual hæmostatic measures of no avail, I gave a dose of tr. digitalis every three hours, applied cold applications to the vagina, and remained with my patient most of the day. Eventually, I was compelled to plug the vagina, after which no hæmorrhage ensued. My patient, however, sunk into a collapsed state; a clammy sweat covered the body, which was cold. I stayed with her the whole night, and, by applying warm bottles and bricks around the body, and administering stimulants and food very freely and frequently, the temperature was recovered. A good reaction taking place, and no recurrence of hæmorrhage, my patient, from this time, gradually improved, and, with the best of skilled nursing, made a good recovery. I should scarcely like to estimate the amount of blood lost, but it consisted of several pints of a dark, liquid blood, which did not coagulate.

The difficulty in this case was, in the first place, to know when to take active measures to stop the hæmorrhage; and, secondly, to find remedies to accomplish this, for all save that of plugging seemed useless.

The only other severe case I have met with was that of a woman, the wife of a respectable tradesman, who had small-pox last February. She was, at the time, suckling an infant. On seeing the nature of the disease, I ordered her to cease doing so. Four days afterwards menstruation, which had been absent during lactation, came on.

The patient was a strong woman, and in robust health when seized with illness, and the small-pox was confluent in type. I was not particularly anxious about the menstrual loss, and, learning that it was not excessive, I did not interfere.

I, unfortunately, could not get a trained nurse, and had to put up with a particularly bad one of the charwoman type, who evidently considered self-protection was the first object to be attained, the means adopted being to saturate herself with whisky. My assistant, who saw the case more frequently than myself, was misled by this woman as to the quantity of blood actually lost. The patient showed signs of anæmia in the mucous membranes; the pulse was greatly weakened. I discovered the loss had been very considerable; and, though active remedies were adopted, she died. It is probable, if active measures had been taken earlier to

stop the hæmorrhage, which, unfortunately, was of a greater extent than was anticipated, that probably the result would have been more favourable.

As regards the management of cases of menorrhagia or metrorrhagia, during the febrile state, in many instances, as I have already stated, we may consider the loss of blood, if moderate, as beneficial, and we are right in not interfering with it. The uterine mucous membrane may be considered to be acting as a safety-valve, and good effects may, possibly, result by lowering the blood pressure and the temperature. But, I have every reason for stating that we must be very watchful and cautious not to let the hæmorrhage continue too long, lest it become almost uncontrollable.

I am convinced that we take too little notice of the occurrence of menstruation during a febrile attack. We may, or we may not be told casually that our patient is menstruating, and, if we are, we treat the remark almost with indifference. In other cases, we may not hear of it, the nurse or friends of the patient considering it a natural occurrence, and of little consequence. I imagine that, in the old days of blood-letting, our fathers were accustomed to enquire, and take into consideration more than we do the loss of blood by menstruation, for the simple reason, that a lowering of the blood-pressure was part of the treatment in all febrile diseases; and it is, I think, probable, that nature's loss frequently saved the operation of venesection. In considering how far the hæmorrhage is beneficial, in such cases, we should be greatly guided by the general bodily condition of our patient. We should consider what loss of blood she is capable of sustaining, and be careful to ascertain the former performance of the uterine function, and also learn if our patient is of a hæmorrhagic diathesis. Even when we have decided that the loss of blood should be checked or stopped, it is not always easily accomplished; the marked fluidity, and want of coagulability of the blood, in some cases, rendering ordinary hæmostatics almost inert, and plugging of the vagina necessary.

In conclusion, let me suggest that we, as careful practitioners, pay more attention to the occurrence of menstruation, or uterine hæmorrhage, during a febrile attack, and endeavour to ascertain whether we have menstruation or uterine hæmorrhage to deal with, bearing in mind that the former is a common term for all forms of uterine hæmorrhage with the laity. It is just possible that, by an oversight of this kind, we may find, too late, perhaps, that a physiological process has stolen a march upon us, and insidiously become converted into a pathological, and may be a therapeutical difficulty; or that a hæmorrhage which, had it occurred from the nose, lung, stomach, or bowel, would have

received every attention at our hands, because it has arisen from an organ which periodically bleeds, has been deemed unimportant, and not calling for special attention. It may occasionally happen that, in such a neglect, lies the explanation of the tardy convalescence, or fatal termination of some cases, which otherwise seem difficult to understand.

Dr. PEART: What has been the menstrual history of your first patient since her recovery?

Dr. MANTLE: Her periods are irregular, and similar to what they were before her illness began.

RECENT EXPERIENCE IN THE TREATMENT OF UTERINE HÆMORRHAGE.

By THOMAS OLIVER, M.D., M.R.C.P.; Physician to the Infirmary; and Physician-in-Charge of the Department for Diseases of Women, Infirmary, Newcastle-upon-Tyne.

It is not to be wondered at that an organ so richly supplied with blood as is the uterus, and one which is itself periodically the seat of hæmorrhage, should, by some derangement of its local mechanism, or from some disordered general state of the system, be the seat of excessive bleedings at these normal periods, or, at other times, without any reference to this peculiar normal tendency. Regarded in the light of a safety-valve, it is the function of menstruation to restore the equilibrium of the circulation. For a few days prior to the appearance of the menses, a degree of constitutional disturbance is being developed, which is seen chiefly in the nervous system, but whose effect upon the circulation is shown in the heightened arterial tension which exists at this period. Without discussing the question of the relationship of ovulation to menstruation, we must all, I think, admit that, either associated with or immediately consequent upon the hyperaemia, or increased functional activity of the ovaries, which takes place just before menstruation, there is a deranged constitutional state, relief to which, in most cases, follows the flow of blood from the uterus. Reduction of the heightened arterial tension of the system, and a similar reduction of the turgescence of the utero-ovarian vessels, is the consequence of this flow of blood from the uterus. When the flow is regular, and the quantity normal, health is, in most cases, the experience; but the flow has simply to cease from causes other than pregnancy for its effects to be felt. Two things predispose to uterine hæmorrhage: one is habit, seen in the normal monthly determination of blood to the pelvis; and the other is that the mucous membrane of the uterus, like that of the nose, has a fairly convenient communication with the external surface; hence, the freedom and comparative safety to the individual, for a time, at least, from even excessive hæmorrhage. And yet, if there is one source of hæmorrhage, the successful treatment of which depends upon knowledge of its cause, it is, particularly, uterine hæmorrhage. Where there are so many causes, we would do well to understand them. Several of the cases here recorded were sent to me as patients said to be suffering from affections of the uterus, other than those which I diagnosed, while others had been treated for months, or years, without the slightest benefit. The cases are taken from my private journal, and from the Gynæcological department of this Hospital.

To cases dependent upon some general constitutional cause, such as fever, cardiac, kidney, and hepatic disease, hæmophilia,

or lead-poisoning, I shall not, beyond thus naming them, draw your attention. Nor would I specially divide the forms of uterine hæmorrhage into menorrhagia—excessive loss of blood at the menstrual periods, and metrorrhagia, simply loss of blood from the uterus at times other than the menstrual. The former tend, as a rule, to run into the latter, that we may simply group all the cases under the heading of uterine hæmorrhage.

Of the local causes, one would say that the first and most frequent was a continuation of that local hyperaemia of uterus and ovaries, which is the vascular substratum of normal menstruation. Any cause prolonging this produces menorrhagia, hence its dependence upon excessive ovarian activity, or ovarian inflammation in the early stages, or inflammation of the uterus itself. I find ovarian irritation, in young married women, the result of too frequent coition, a not uncommon cause of uterine hæmorrhage, a hæmorrhage not confined to the menstrual, but appearing also in the intermenstrual periods, relief to which is got by Potassium Bromide and blistering. A few weeks ago, I had a noticeable case of this kind under my care, in the Wards upstairs. J. C., aet 16, a healthy-looking, well-developed, but nervous girl, was admitted by Mr. Waldy, House Physician, blanched and almost collapsed from severe uterine hæmorrhage, which had linked itself on to the menstrual. Under the administration of large doses of ergot the bleeding ceased, but only to recommence a few days after. I dilated the cervix by means of tangle tent, and, under the influence of chloroform, explored the uterus. In size and thickness of mucous membrane this organ seemed to be quite healthy, but the left ovary was much larger and heavier—twice as large as it should be. Pot. bromide, ergot, and blistering, checked the hæmorrhage, and she went home quite well after a few weeks' residence in the Infirmary. At the next menstrual period but one after this, there was a slight return of the hæmorrhage, probably due to excessive ovarian hyperaemia, but it was easily controlled by ergot and bromide. This was a case of extremely severe uterine hæmorrhage, which, had it not been restrained when it was, would have been, in all probability, fatal within the next few days. And, as shewing how ovarian irritation tends to prolong the menstrual flow, I will only mention one other case. Mrs. C., aet 30, has, for several months past, at her menstrual periods, lost large quantities of blood, and the flow has lasted seven or eight days. On examining her, I found the right ovary enlarged and prolapsed, and somewhat adherent to the posterior wall of the uterus. That organ was slightly enlarged and heavy, and tended to bleed, but was not painful, nor was it bent. Here, under the influence of a prolapsed and adherent ovary, exposed to irritation from its position, the uterus was kept in a continual state of hyperaemia, upon which, in all probability, depended more immediately the lengthend menstrual flow.

I find metritis a very frequent cause of uterine hæmorrhage. The uterus, in such, is heavy, enlarged, and tender; the least touch of the organ is felt as a very acute pain, and the organ bleeds on the slightest provocation. A good many of these cases are met with in young married women, and receive great benefit from the regular employment of the hot vaginal douche of liq. plumbi diacet, and vini opii, with Pot, bromide internally in the acute stage, and in the more chronic cases from the employment of glycerine pads medicated with astringents, if necessary, and the internal administration of tonics. The mention, too, of metritis as a cause, leads me now to link it and sub-involution of the uterus on to post-parturient conditions, in which, either owing to the general debility of the woman, or exposure soon after, there is left a condition of the uterus, of which increase of size and vascularity, and with, at times, a degree of tenderness at the fundus, are the most notable features. This I regard as a very frequent cause of uterine hæmorrhage. Here, general debility, by interfering with the proper involution of the organ after delivery, allows it to remain large, and succeeding menstruations are attended by larger discharges of blood, and for a longer period, and by degrees, as time goes on, bleeding occurs without any reference to the menstrual period. Leucorrhœa is profuse, and between it and the hæmorrhage, the health of the patient is slowly, but seriously, undermined. I saw a very good case of this a few months ago, in the person of Mrs. B., æt 36, a tall and extremely anaemic woman who had not had good health since the birth of her child, seven years ago. Recovery from the confinement was slow. Her menses were afterwards profuse, and for the last few years she had suffered from hæmorrhage from the uterus every second or third day. Her health had become so seriously affected that she could not undertake the duties of her household. On examination I found a tender cervix, a heavy uterus, with its canal elongated, and its fundus tender. Pain, too, was felt over the ovaries. I brushed, on several occasions, the interior of the uterus with strong lin. iodi., recommended the hot douche, and used glycerole of alum pads, and the result is that between these and the employment of Pot. brom. with ergot, and later on by nux vomica and Viburnum Prunifolium, she is, now, not only able to look after her house, and walk long distances, but says that her health is better than it has been for several years, and that she now menstruates regularly every four or five weeks. A similar case is that of Mrs. D., æt 34, who was sent to me from Low Fell. After a miscarriage in the fifth month of pregnancy, about two years ago, patient's health began to suffer from the effects of very frequent hæmorrhage. A similar condition of the uterus being present in this case, I followed the same line of treatment, and the patient is now quite well.

The post-puerperal state is one of the most fruitful sources of uterine hæmorrhage. Sub-involution of the uterus frequently follows, where there is general debility, with or without metritis, and in many cases a small shred of placental tissue is retained; and, from the immediate cessation of the hæmorrhage which follows upon the removal of this tissue, we cannot but connect the two together as cause and effect. A few months ago, I was asked by Dr. SUTHERLAND, of South Shields, to see with him Mrs. C., æt 28 years, a thin, but healthy-looking woman, who had been married 11 years, and had been the subject of several miscarriages. Dr. SUTHERLAND had treated the patient and her husband for syphilis. Three months before I saw her, and, at a time when she was five months' pregnant, some accidental hæmorrhage occurred. She was seen by an eminent Newcastle Gynæcologist in consultation with Dr. SUTHERLAND. Plugging was resorted to, and, in a few days after this, labour was induced. The placenta was so much decayed, that it was impossible to say whether it all came away. She made a fair recovery, but used to bleed a great deal. For five weeks before I saw her, she had been bleeding rather profusely. The blood simply flowed from her when she attempted to walk across the floor. Ergot, in large doses, had been tried without any good result. On examining the abdomen, nothing was detected, save that pain was felt on pressing upon the seat of the left ovary. Per vaginam the "os" was felt to be well dilated, owing to the action of a tent placed there the night before I saw her. The cervix was soft, the inner "os" was small, but admitted the tip of my finger, which, with a little difficulty, I got wholly into the cavity of the uterus, and explored it. The lower segment was quite healthy. Towards the fundus, the mucous membrane felt soft and fungating. Pendant from the fundus was a villous-like process of tissue, fairly firm, but very friable. By means of a curette, I scraped off the mucous membrane with this foreign material attached to the upper part of the uterus, and brushed it well with strong carbolic acid and lin. iodi. (one to three.) We put her upon liq. hydrarg. bichlor. pot. iodi., and liq. strychniae. A few days after this the temperature rose to 105°, pulse 140. She had headache, and was much indisposed, but, under the administration of quinine, and the use of the hot douche, this gradually subsided as did also an inflammatory effusion around the uterus. In a few weeks she was able to go out again, and, when I saw her last, she looked the picture of health, was no longer losing blood, save at her menstrual periods, which were regular, and the flow at which times was normal.

And if the post-puerperal state, *i.e.*, the conditions which follow the completion of pregnancy at the full period be a source of uterine hæmorrhage, none the less is that which follows abortion. Here, on the one hand, from a disturbance, by accident or otherwise, of the relationship between the uterus and its

contents, or from the action of a specific poison, like syphilis, there is a far greater tendency for placental tissue or membrane to be retained, and, consequently, bleeding is a not uncommon sequel. I meet with many cases due to such a cause, and, when I do so, if the abortion has been recent, I never hesitate to pass my finger into the uterus at once, and remove, either by it or other means, some broken-down tissue, the retention of which, in the uterus, we cannot but regard as the cause of the bleeding. These are just the cases where, with a history of abortion and bleeding returning soon after and continuing, no line of treatment can be successful which falls short of the removal of any foreign material that may be present. It may be necessary to scrape the interior of the uterus and apply a strong astringent, or a mild corrosive.

Of the association of abortion and uterine hæmorrhage, one need scarcely speak. They are so frequently seen by all of us. Of two cases I saw last week, in consultation, one patient was so reduced by the bleeding, that, frequently, the pulse was absent at the wrist. There had been vomiting and frequent faintings before I saw her. The case had been regarded as one of uterine fibroid, but, on examining, I found just beginning to protrude through a fairly well dilated "os," a round softish mass about the size of a walnut, and only slightly adherent to the uterine wall. With a little difficulty, I removed it, and scraped a portion of the mucous lining with my finger-nail. The bleeding up till then rather profuse, almost immediately stopped, and, though the pulse was scarcely perceptible at the wrist, the patient, cold and covered with a clammy sweat, yet, by means of beef tea and brandy enemata, ether mixture, and careful watching, patient is now almost well again. Many such similar, but slighter cases, when they occur in married women, are spoken of as cases of delayed or rather suppressed menstruation which are yielding, but, if a careful examinution of the clots which are passed is made, most of them will be found to resolve themselves into cases of abortion within the 2nd month. The strange thing about uterine hæmorrhage from abortion is that the bleeding often lasts a long time, and is frequently intermittent, before the ovum is expelled.

A very frequent and often overlooked cause of uterine hæmorrhage is the presence of small mucous polypi within the cervix. The growths are of various sizes, and are extremely soft. In the beginning of this year, I was asked to see, with Dr. Stainthorpe, of Hexham, Mrs. N., a widow lady, aged 50. She was thin and extremely anaemic. Her menses had continued regularly until the age of 47, when, after the death of her husband, they ceased. Three months after this they returned, and, with each recurrence, the flow of blood became greater, and lasted longer. She now began to bleed between the periods. At

this time she was in Yorkshire, where she saw two medical men, but as on examination, nothing abnormal was detected, only medicinal treatment was adopted, but without giving any relief. For several weeks before I saw her, she had been bleeding almost continuously. On examination, I found an elongated soft polypus growing from the mucous membrane of the cervix, almost the size of an almond. Two days after this, assisted by Drs. Stainthorpe and Stewart, of Hexham, I twisted off the polypus, brushed out the interior of the uterus and lining membrane of cervix with lin iodi (the uterus was elongated one inch beyond the normal), ordered vaginal douches of Condy's fluid, and gave iron tonics, and from that day till this, patient has remained quite well, has put on flesh, and is now going about in the enjoyment of excellent health. I have seen other two cases within the last few months, both of which have done well under similar treatment. One, that of Mrs. A., Gateshead, aged 50, a healthy-looking woman. Her menses having ceased for several years, she began to bleed a few months before I saw her. The bleeding was painless. On examining her, I found two small polypi growing just within the cervix. These I twisted off. Patient remained well, free of bleeding until January last, when slight bleeding returned, due, as I found, to the presence of another small polypus. The bleeding has since remained absent from the day I twisted off the small fleshy growth. Bleeding is, in some of these cases, very profuse, considering the small size of the polypus, and is painless as a rule; the clots which are passed are formed in the cervix or upper part of vagina, and are passed without pain. The treatment is most successful. Twist them off when you can, but where they are soft and break down readily under the finger, the insertion of a sponge-tent into the cervix will, during the expansion which such undergoes, so press upon the polypus and destroy its nutrition, that we have in such means, a ready, safe, and effectual method of treating many of these very soft growths.

Of cases of uterine hæmorrhage, due to the presence of large fibrous polypi, I have had, within the last 18 months, three or four examples. Their removal has been effected by means of the wire ecraseur, with in every instance a complete cure being the result. In one of the cases a good deal of constitutional disturbance followed the operation: high temperature, vomiting, with feeble pulse, and a good deal of abdominal tenderness; while, in another, the operation was followed by phlegmasia alba dolens in the left leg. Within a few weeks, however, all this disappeared, and functional murmurs, which had been heard over the base of the heart, almost ceased to be audible. All the cases did well.

If there is one cause of uterine hæmorrhage which is not sufficiently recognized, it is flexion of the womb. Again and again, we see cases of pretty severe hæmorrhage from the uterus due to this cause. A short time ago, a case of this kind was sent to me by a medical friend, in Gateshead—Mrs. B., æt 30,

who was said to be the subject of a fibrous tumour of the uterus, so severe were the hæmorrhages. On examining her, I found a hard, roundish, somewhat tender mass lying behind the cervix, which, with a little care, I could displace. On passing the sound, I found I had to do with an elongated uterus which was markedly retroflexed. I raised the heavy fundus up, and, introducing a Thomas' retroflexion pessary, dismissed the patient. The bleeding thereafter ceased, patient lost most of her pains, and is, at the present time, quite well. I have found in most cases of severe flexion of the uterus, that the fundus is heavy, enlarged, and rather painful; the swelling being due, in all probability, to constriction of the veins at the line of flexion In such, bleeding is a natural effect of the retention of the menstrual fluid. As it cannot easily escape, it accumulates, distending the uterus, and, as it increases thus the size of the secreting surface of the uterus more blood is poured out, and later on, the contents are expelled suddenly, and in large quantity. Re-accumulation takes place, owing to the loss of tone of the muscular wall of the uterus, which is the seat of hyperaemia and œdema. Again, the bloody contents are expelled, and, time after time, is this process repeated. Straighten the uterus as far as you can, improve its tone by means of astringents, such as by pads, soaked in glycerine and alum, and the use of the cold hip-bath, and, in a short time, under these means, and the internal administration of tonics, and laxatives, if necessary, the uterus will regain nearly its normal size and firmness, and bleeding will be arrested.

I have seen, within the last few months, four cases of uterine hæmorrhage, due to a diseased condition of the mucous lining of that organ. The mucous membrane, owing in all probability to the effects of syphilis, had become soft, thickened, and velvety. In one of the cases seen, in consultation, with a medical friend, in Shields, I scraped the interior of the uterus, and brushed it with strong iodine; the patient never had a bad symptom. She lost her bleeding, In another case, that of a young girl, aged 18 years, who was in the wards, upstairs, whose hæmorrhage had been so severe, that she was admitted in a state bordering upon collapse, I dilated the cervix, and detecting a soft, thickened, and fungating condition of the mucous membrane at the fundus, I scraped it well with the curette, and brushed it freely with carbolic acid and iodine. Beyond the development of perimetritis, with effusion into Douglas' pouch, accompanied by a rise of temperature for several days, no unpleasant effects followed the operation. Patient has since had no return of the hæmorrhage.

Of excessive menstruation, associated with periuterine hæmatocele, I have seen four cases lately; and of excessive bleeding at the climacteric period, three or four. In the cases of periuterine hæmatocele, I am certain previous pelvic inflammation had existed, and of the pathology of the bleedings at the climacteric period, it is rather difficult to speak. I have found, in two, enlarged ovaries, and in another, a distended tube and prolapsed

left ovary. It is possible that most of these cases are due to ovarian irritation. *Simple ulceration* of the "os," I find occasionally a cause, but not of extensive hæmorrhage.

Of the relationship of bleeding to *malignant disease* of the uterus one need scarcely speak. The application of styptics is easy and fairly effectual in most of these cases, followed, too, as it may be, by the use of iodoform pessaries to relieve the fœtor of the discharge, or, at least, substituting one kind for another. Excessive bleeding is seldom seen in those cases of malignant where the cervix is removable; if the cervix can be removed so much the better. I have treated four of my cases of extensive malignant disease of the cervix, in one of which the ulceration and thickening, and the extension of the diseased process into the body of the uterus, and the tissues in the roof and sides of vagina, were most marked, by scraping. By means of VOLKMANN'S spoon I have removed large pieces of the growth, the tissues of which, on the surface, are so brittle, that they easily break down, while the deeper portions are firm, and require some force applied to them in the scraping, and then, after this, swabbing the scraped surface with a strong solution of chloride of zinc, I have been gratified by the results that have been obtained. Three such patients, who had come from a long distance, extremely cachetic, partly from the losses of blood, and partly also to their simply being the subjects of malignant disease were thus treated. They not only lost their tendency to bleed, but gained in flesh, recovered their spirits, and were able to return, in comfort, to their homes. The fœtor of the vaginal discharge, too, was diminished. It is needless to say that the gain, in all these cases, was only temporary. The disease was too far advanced to be eradicated by this means, but so far as my experience of scraping is concerned, I can say that it gives great relief, checks the hæmorrhage for a time, makes the patient feel more comfortable, and, I believe, lengthens the life of each one so treated. From the employment of Chian turpentine as a check to the hæmorrhage, or to the growth of malignant tumours of the cervix, I have experienced no good results whatever.

These are a few practical facts which have struck me in dealing with the question of uterine hæmorrhage, and I can only conclude by repeating what I said at the commencement of the paper, viz., that as uterine hæmorrhage has many causes requiring, therefore, variety in the treatment, the success of the latter depends entirely upon a thorough appreciation of the cause.

Dr. ADAMSON: I would like to ask Dr. OLIVER if he has had any experience of menorrhagia due to the practice of the principles recommended by BRADLAUGH and BESANT. I had, in a few instances, confessions made to me by women who had adopted this means of checking reproduction, of the relationship which it bore to the excessive menstrual hæmorrhages from which they were then suffering. How it acted I am not prepared to say. Expectation and subsequent disappointment were probably the emotional substrata.

ON PARALYSIS FROM PERIPHERAL NEURITIS.

(Continued from page 24.)

By DAVID DRUMMOND, M.D., Physician and Pathologist to Newcastle Infirmary.

ALCOHOLIC PARALYSIS.

The alcoholic variety of peripheral paralysis deserves our closest attention, and I feel that I am justified in considering it before the other forms, first, because it is the commonest; second, because it is the most dangerous to life and limb; and third, on account of the opportunities that have occurred to me of working at the pathology of the affection.

Few varieties of paralysis are more common, and, when the case is well marked, present more characteristic features than the alcoholic, yet, as there is a want of uniformity, and all cases are not alike, great care is necessary to avoid mistakes in diagnosis. On account of the cerebral symptoms so commonly met with, the case is liable to be looked upon as one of softening of the brain; others again are confounded with acute ascending myelitis, while not a few are mistaken for locomotor ataxia; but perhaps the resemblance between alcoholic paralysis and the group of sub-acute lesions affecting the spinal grey matter, of which the so-called *sub-acute anterior general spinal paralysis* of DUCHENNE may be taken as a type, furnishes us with diagnostic problems of still greater difficulty.

My observations include twenty cases, of which fifteen were women, and five adult males. The ages of these patients vary from 24 to 63 years, whilst the great majority are from 30 to 50: though, doubtless, we may expect to meet alcoholic paralysis at any period of life, provided the excessive use of the stimulant has been indulged in. It is a striking and interesting fact that women should be so much more frequently attacked than men, the reason for which has yet to be worked out. It is suggestive, however, that four out of the five men in my list of cases led sedentary lives, and were "soakers" rather than erratic drinkers, as working men so often are. One of them was a tram conductor, one a man of independent means, and two kept public houses. In the manner of drinking, therefore, as well as mode of life, they resemble somewhat the ordinary female alcoholic, who is essentially a chronic toper. Five of the total number of the cases recovered; six were lost sight of before complete recovery could be registered; and nine died. Of the fatal cases, seven were women and two men, but these points will again be referred to when the question of prognosis is under consideration.

As a rule, the symptoms come on gradually, and overtake the unfortunate alcoholic as he or she is imbibing the usual daily supply of the stimulant, though, occasionally, the affection

makes such rapid strides after or during a drinking *bout*, as to suggest that the attack began acutely. No doubt, in some instances, the paralysis develops almost suddenly, when the term acute alcoholic paralysis might be justifiable. The earliest indication of the approach of the paralysis, which generally overtakes the patient when more or less "out of health" from intemperate habits, is usually the feeling of numbness and tenderness in the lower extremities, the feet and calves being first affected in this way. Not unfrequently one leg is affected some little time before the other. By degrees, difficulty is experienced in walking, the effort becomes painful, and the limbs feel heavy, whilst the movements are somewhat shuffling and uncertain. Pains of a more or less characteristic nature are now complained of. These constitute a most important symptom, and, when met with in a case of true paraplegia, may alone furnish almost sufficient data upon which to found a diagnosis. It is perhaps within the mark to say that the patient experiences three distinct kinds of suffering, though all three varieties of pain may not be present at the same time. In the first place, the pains often shoot down the legs into the feet or other part of the lower extremities, when they simulate very closely the lancinating pains of locomotor ataxia; or constant rheumatoid pains are complained of, which are increased by every movement; and, thirdly, there is commonly a soreness and hyperæsthesia in the feet and affected muscles, elicited by pressure, the slightest touch being, in some cases, sufficient to cause the patient to scream out. This latter phase of the sensory disturbance is very suggestive, and it is noteworthy that it is borne with little or no fortitude. In some cases, I repeat, one or more of these varieties of pain may be absent, but the tenderness of the feet and muscles, especially the latter, is nearly always present, more or less. It happens not unfrequently that the symptoms develop no further than this degree of paralysis, when, provided the alcohol be withdrawn, the patient may gradually recover. As a rule, however, the motor weakness increases until the patient can no longer walk, or even stand. Along with this increasing paralysis is observed a corresponding diminution in the bulk of the affected muscles, which, in some cases, undergo very rapid atrophy. Those usually first paralysed are the tibialis anticus, the extensor longus digitorum, and the extensor proprius pollicis, or muscles supplied by the anterior tibial nerve. So that the condition which I have ventured to call ankle-drop is produced, the foot being extended at the ankle. This condition is an important diagnostic aid, and is certainly highly suggestive, though by no means pathognomonic of the form of paralysis under consideration.

The muscles on the front of the thigh (quadriceps femoris) are also very frequently paralysed, nor are the calf muscles likely to escape in well-marked cases. The muscles now feel soft and

flabby, and are, as I have stated above, exquisitely tender. Every attempt to move, or otherwise interfere with the limbs, is strongly resented. Indeed, in many instances, the patient is as jealous of interference as if he were the subject of acute rheumatism.

Accompanying the atrophy, a marked diminution in faradic contractility is commonly noticed. This is very pronounced in some cases, so much so that the strongest interrupted current may fail to contract the wasted muscles. When carefully tested with both forms of current, especially at a comparatively early period of the paralysis, the *reaction of degeneration*, may easily be demonstrated, and, as this is a point of importance in all forms of peripheral paralysis, it may not be out of place to state, briefly, the nature of the reaction. The electrical change first observed is loss of faradic excitability. In a few days the galvanic reaction also declines, but by degrees (ten days or so from the time that the decline was first detected) the galvanic irritability begins to increase, so that a weak current hitherto insufficient to cause contraction will affect the muscles distinctly. It is further noticed that these galvanic contractions are sluggish in the extreme, and that the most energetic contraction is produced when the current is closed with the positive pole on the muscle. In addition to the pains already mentioned, there are other sensory defects of considerable significance. Hyperæsthesia, no doubt closely allied to one form of pain, deserves first mention. With this we have hyperalgesia, if indeed it be practicable to draw a distinction here in cases of alcoholic neuritis. The sensitiveness is usually distributed in areas, and, in slight cases, may be absent; on the other hand, it is important to observe that, in some comparatively rare cases, well-marked alcoholic motor paralysis occurs, with little or no sensory disturbance; in other words, some cases are purely motor. Next in importance to the hyperalgesia is cutaneous analgesia (loss of pain), which also is met with in patches, according to the distribution of the multiple lesion, though careful examination will generally reveal impaired sensibility in the region of the distribution of the cutaneous branches of the peroneal nerve—outer surface of the leg, as wel[1] as of the skin between the great and second toes—internal terminal branch of the anterior tibial nerve. Again, there may be loss of touch impressions (anæsthesia), retarded sensibility (pain), and perverted thermal sense; and, occasionally, there is a well-marked girdle sensation round the trunk, or even round the limbs. The vaso-motor and trophic disturbances most frequently observed are coldness and cyanotic mottling of the surface of the affected limbs, with œdematous swelling; at times purple ecchymotic stains make their appearance, and, occasionally, in severe cases, bed-sores develop. It is to be borne in mind, however, that, in the majority of cases, there are no bed-sores. The same may be said of the vesical and rectal sphincter paralysis, for, as a rule, the patient retains control over bladder

and rectum, though, in very pronounced cases, complete relaxation may be met with. At first, before the paralysis is advanced, there may be found a lively plantar reflex, though it is quite usual to meet with an early disappearance of this phenomenon. In some cases the knee-jerk is lost from the first, but I have several times met with it even to an exaggerated degree. Sooner or later, as the case advances, skin reflexes and tendon-jerks disappear, and, it may be taken as a general statement that, in well-marked cases, there is a complete absence of all the reflexes of the lower extremities, and further, the tendon phenomenon will, generally speaking, remain absent long after motor power has returned. On the other hand, as might be anticipated from the nature of the lesion (multiple neuritis), in a few rare examples neither plantar reflex nor knee-jerk are entirely absent throughout the whole case.

As the features of the case become more pronounced, we are generally able to discover that the lesion has extended beyond the legs, and has begun to affect the upper extremities as well. According to BUZZARD,* the latter are more or less implicated in almost all cases of alcoholic paralysis. He remarks: "Where careful observation shows that the lower extremities are alone involved, the upper extremities being quite normal as regards strength, sensibility, and electrical reaction, it will usually, I think, be found that the influence of alcohol may be put out of the question." Whilst admitting that the hands commonly are involved, I am convinced that they sometimes escape, indeed, I have no hesitation in asserting that I have met with some undoubted cases of alcoholic paralysis in which the lesion was confined to the lower extremities. When the arms are affected, the same motor and sensory disturbances as I have described as occurring in legs make their appearance, only in a slighter degree. Thus we have paresis in the arms and hands, commencing with numbness and advancing to paralysis and atrophy. The muscles first and most profoundly affected are usually the extensors of the fingers. In the slightest cases, some numbness, with incomplete paralysis of the extensors of one or two fingers, may be all that indicates an extension of the affection to the arms. In other cases, there is complete drop-wrist, when, as a rule, the supinator longus will be found to be paralyzed. Most frequently the skin is more or less analgesic, and the muscles are sensitive on pressure; but the sensory disturbances seldom approach in severity the analogous state of the lower extremities. In some cases, the arms suffer more than the legs; indeed, the latter may show little or no defect; but this is exceedingly rare, though I shall quote a well-marked example in proof of the remark.

Some cases of alcoholic neuritis display a striking resemblance to tabes dorsalis, for, not only is the knee-jerk absent, but there

*Paralysis from Peripheral Neuritis, page 94.

may be shooting pains and marked ataxy. To the question of differential diagnosis I shall return later, but I desire, before leaving this part of the subject, to emphasize the fact that inco-ordination may be the most prominent motor phenomenon during the earlier part of the case. Thus, the patient may fail to recognize the position of his legs in bed; he may be unable to place the leg, with the eyes shut, in any required position—the heel of one foot on the toes of the other, for example; and he may be unable to walk or stand with the eyes closed, and so forth. Though the ataxy is often sufficiently striking in alcoholic cases, I must say that the cases of neuritis in which inco-ordination has been most marked have not been of the alcoholic variety.

(To be continued.)

NORTHUMBERLAND AND DURHAM MEDICAL SOCIETY.

SESSION 1886-7.

DECEMBER MEETING.

The Third Monthly Meeting of the Society was held in the Library of the Newcastle-upon-Tyne Infirmary, on the evening of Thursday, December 9th, Dr. Hume, President, in the Chair.

TWO CASES OF NEGLECTED TALIPES.

Dr. Brakwell: Alice G., aged 12, was admitted into the Newcastle Infirmary in May last, owing to aggravated talipes equino-varus, of congenital origin. She had never had any treatment for the deformity, and walked on the outer and upper part of the feet, there being a large bussa situated over the head of the astragalus. On standing, the soles of the feet were completely off the ground, being directed inwards and backwards. There was marked contraction of the arch of the foot, a deep furrow being situated over the position of the scaphoid. Dense bands of fascia could be felt passing across the inner and plantar surfaces running from the os calcis to the scaphoid and internal cruciform bones.

It was evident from the aggravated condition of the deformity that simple tenotomy would be of no avail in remedying the condition, and that the outer surfaces of the arches must be shortened in order to bring the feet straight. This was done by excising the above bones. The only difficult part of the operation being the division of the interoseous and internal calcaneo-scaphoid ligaments. At the same time, the tendo-achillis and plantar fascia were divided, the latter being cut in the following manner:—A sharp-pointed tenotome was introduced opposite the tubercle of the scaphoid bone, and pushed inwards under the skin of the sole of the foot for about an inch, thus reaching beyond the internal intermuscular septum; the blade of the knife was then made to cut everything down to the bone, dividing plantar fascia, internal intermuscular septum, abductor pollicis, and internal plantar artery, and nerve. In this manner, all the structures causing construction of the arch of the foot were freed.

After the wounds had healed, which did so rapidly, and without complications, manipulation, galvanism, and extension to the outer side of the foot by means of a special splint, were adopted. In this manner both feet have so far regained the normal position, that the patient is now able to plant the soles of the feet flat on the ground.

Dr. Hume: These cases which I have asked Dr. Bramwell to show to the Society, were properly called cases of neglected club foot. In the one case, the patient, though quite a young child, had been walking upon the dorsum of the foot for some time before treatment was begun. The other patient was 13 years of age, and the casts exhibited showed the exaggerated character of the deformity. Treatment in this latter case was not yet concluded, but the Society would see to what a satisfactory point it had advanced. Operative treatment in this case has consisted of excision of the cuboid bones, section of the tendo-achillis, and free division of the contracted plantar fascia, with, at the same time, the tibialis posticus. The excision of the cuboid was adopted because it seemed to promise a sufficient shortening of the outer line of the foot, and to involve interference with fewer joints, and, in consequence, less risk of destructive suppuration, than the alternative plan of removing an osseous wedge from the dorsum. In the right foot there had been no suppuration, and very little in the left. Both wounds healed readily. One chief reason for showing these cases was to demonstrate the advantage of free division of the contracted plantar fascia. Attention had been directed to this a good many years ago by Professor George Buchanan, of Glasgow. He pointed out that the part of the plantar fascia usually most involved was the strong band to which, on either side, the abductor pollicis and flexor brevis digitorum are attached. When section is made of the fascia alone, the undivided muscles maintain the cut ends of the fascia in proximity, and, when healing takes place, the old deformity is reproduced. Professor Buchanan, therefore, argued that it is necessary to divide the fascial and muscular structures freely down to the bone so as to allow sufficient separation of the ends during repair. This section I have practised in the cases shown, and in several others. In all, the result has been satisfactory, and in none has there been inconvenience from bleeding or any other cause. The Society is, to-night, honoured with the presence of Professor Buchanan, and it has been in my mind, in having these cases shown, that Professor Buchanan would perhaps kindly say something to the Society with regard to his plan of treating club foot.

Prof. Buchanan: At a comparatively early period of my life I was called upon to operate upon quite a large number of these cases of club foot, and I performed the operation as I had been taught by my teachers and instructed by my text books. I came

to the conclusion, however, that the incurvature of the foot was the great thing to overcome, and that this incurvature depended upon the rigidity rather than the contractility of the muscles. And again, more than the rigidity or contractility, we have to take into consideration the length of time the foot has been kept in its constrained and deformed condition. I, therefore, conceived the idea that the proper practice would be to pass the knife into the sole of the foot and divide everything down to the bone,—through the muscles, nerves, tendons, and everything down to the hollow between the astragalus and os calcis. The inutility of dividing all the muscles, one after the other, in consecutive order, I have always been convinced of, and as regards the division of the tibialis posticus particularly, I never believed in the vital necessity of that procedure looking at the structure of the muscle and its very slight amount of resistance. But, if it is to be divided at all, it is best divided at the tubercle of the scaphoid. With regard to the danger of hæmorrhage, from my method of operation, the only vessel that is likely to be cut is the internal plantar artery, and that is a mere trifle which never gives any trouble practically. I do not, however, gentlemen, believe that all cases of talipes are to be cured by tenotomy. I do not believe, for instance, that this case from which Dr. Hume removed the cuboid was likely to be cured by tenotomy alone. But neither do I believe in the dictum which went forth from the International Congress, at Copenhagen, that the only and proper treatment was by osteotomy. Apart from tenotomy, I believe in osteotomy; and, in adopting the latter procedure, I should select that wedge, irrespective of any particular bone or bones, which by its removal was likely most rapidly to cure the deformity.

ABDOMINAL ANEURISM—Case I.

Dr. Limont: This man first came under my care about the end of August, complaining of heat and numbness in his left leg, of about four years' duration, and a pulsating tumour in the abdomen, which he first noticed a year before he came to hospital.

He is 60 years old, and a tailor by occupation. He entered the army at the age of 18, and remained in it about ten years, but during that time worked as a tailor, and rarely did any military duty. There is a history of gonorrhœa, but none of chancres, or any strain. He has never had any serious illness. He is married and has healthy children, and there is no history of his wife having had miscarriages. He has been a very steady man all his life. Almost five years ago he suffered from pain in the small of his back, which rendered him helpless and confined him to his bed for two or three months. He also had severe pains in his legs and thighs, which were worse at night. He says he had, about this time, a very tender swelling on the front of

the shin, about the size of a plum. He got iodide of potass, from time to time, and that relieved the pain and removed the swelling. For about four years there has been a sensation of heat and numbness in the left leg, thigh, and hip. He says it is difficult to guide his leg, and that he walks very badly. All these become worse on exertion and soon bring him to a standstill. He noticed the pulsating swelling, in the abdomen, about a year ago, and it has got larger.

He was an in-patient under my care for about a month, and was treated by iodide of potass and complete rest. During that time, and since he became an out-patient, it has increased in size. The tumour, you will observe, lies directly behind the umbilicus. It appears to be about the size of a large orange, and it cannot be moved. There is marked expansile pulsation, but no thrill. There is a very soft systolic murmur over the tumour, but nothing is to be heard at the back. The left femoral artery can scarcely be felt; the right is of fair size and strength. The sensation of numbness and heat extends all over the left lower limb and round the left side of the trunk as high as the umbilicus. The heart, lungs, and kidneys are normal, and the other arteries seem fairly healthy.

I have brought this case before the Society to-night to obtain an expression, first of all as regards the nature and position of the lesion, and, secondly, as regards the treatment to be adopted. The lesion, I believe, to be an aneurism of the lower part of the aorta, probably involving the origin of the left iliac. As regards treatment, four courses seem open :

1. Rest, restricted diet, with drugs.
2. To do nothing.
3. Compression of the aorta.
4. Ligature of the aorta.

As regards rest, restricted diet, and iodide of potassium. This line of treatment was carefully tried here for a month. I certainly had little hope of effecting any good by it, and, as a matter of fact, so far as I could judge, the tumour, if it did not increase, certainly did not diminish.

One could not, in this case, be justified in doing nothing. Even supposing the lesion were not progressive, the patient leads a very helpless and painful existence, which, of itself, is almost a justification for interference. But the disease is not stationary, it is progressive, and, if left alone, can only have one ending.

Compression of the aorta could doubtless be tried in this case, but, on looking over the record of cases so treated, the results do not seem so satisfactory as to make one pass over, without consideration, the question of ligature of the aorta. In the International Encyclopœdia of Surgery, Barwell gives a list of ten

cases treated by pressure. He prefaces the list by saying that it contains almost certainly all the successes almost as certainly not all the failures. Even then, however, out of the ten cases, there were four deaths, and one case of gangrene. An important fact is that *all* the deaths resulted from peritonitis set up by injury to the viscera or peritoreum by the pressure. Those patients who escaped peritonitis recovered, and were cured of their aneurism. It was not the occlusion of the artery, but the violence used in doing so, that killed the patients. Those cases seem to me to demonstrate the fact, that if you can occlude the vessel without setting up peritonitis, you will get cure and recovery. It does not seem possible to modify the method of applying pressure so as to avoid the bad effects resulting from it; but, it seems to me, that there is far less chance of getting peritonitis by ligaturing the aorta, after Cooper's method, than by pressure kept up for many hours at a time.

About ten cases of ligature of the abdominal aorta are recorded by Barwell, and all ended fatally. This, at first sight, seems enough to deter one from trying it again. After examining these cases, however, I would say that any argument that can be founded on them is rather in favour of ligature than against it. Six of the cases are useless for reference, on account of unnecessary complications which rendered them hopeless, and four only are left for consideration.

Cooper's case stands first on the list. It was performed by Cooper's (intra-peritoneal) method, in 1817, for secondary hæmorrhage. Death ensued in forty hours, and this is the only death which is recorded as being due to peritonitis. As regards this case, I would point out that it was preceded by secondary hæmorrhage, that it was tied very high up above the duodenum, and, lastly, that the death of a case of abdominal section from peritonitis, in 1817, cannot be used as an argument against performing the same operation in 1886.

South's is the second case; but Barwell appears to have been able to find no further record than that the case died 43 hours after operation. It is, therefore, useless for reference.

Watson's is the third case. It was performed by the intra-peritoneal method for secondary hæmorrhage after ligature of the iliac. The patient died in 63 hours of exhaustion; and, I think, one may fairly take for granted that the exhaustion was, at least in great part, due to the previous operation and the hæmorrhage, and must not be regarded as resulting from the ligature of the aorta.

Monteiro's is the last case; and I feel confident that you will agree that, if it had been done with the appliances now at the surgeon's disposal, the patient would have recovered. The

operation appears to have been done by the intra-peritoneal method. The patient was little affected by the operation. He lived 11 days, and then died of secondary hæmorrhage, the result of a permanent ligature being used. Had an absorbable ligature been used, it seems certain the case would have been successful. Monteiro's seems to me a strong argument in favour of ligature of the aorta.

In comparing ligature with compression, one must also bear in mind that, in carrying out the latter, the patient must be kept deeply under the influence of an anæsthetic for a long time. If he be not deeply anæsthetized, vomiting is very apt to come on, causing, almost certainly, disturbance in the aneurism and displacement of the tourniqnet. This long, deep anæsthesia, with the action of the diaphragm more or less impeded, cannot but be regarded as a danger, and one which is not met with in ligature.

I shall be glad to hear the opinions of the members of the Society. I think the case is a very suitable one for ligature. There are no complications, and the aneurism is low down where it can be easily got at. I admit the man is old, but the other arteries and the viscera appear healthy. My own inclination would be to tie the aorta by Cooper's intra-peritoneal method, but I leave, of course, the decision as regards that to Mr. Page.

CASE OF ABDOMINAL ANEURISM SUCCESSFULLY TREATED BY IODIDE OF SODIUM.

Dr. Oliver: Taken in conjunction with the case just exhibited, this patient's illness is interesting. The man is aged 43, and is a roller in an iron works. He was sent to me from Eston, in the latter part of February of this year, complaining of excruciating pain in the back, of severe pain in the limbs, and of a beating in the abdomen. Beyond his having had a suppurating bubo 14 years ago, not followed by a rash, and an attack of lumbago eight years after this, he enjoyed good health until lately. His wife and children are healthy. Six months before his admission, he was obliged to give up work owing to a boring pain felt in the middle of his back, running round to epigaster, and of a similar kind of pain felt in the right thigh, particularly when he was walking or at work. If he lay down, the pain in the thigh disappeared, while the recumbent position did not influence in the least that felt in the back. The pain was always worst at night. There has never been sickness. His pulse was 84 on admission, soft, and compressible; his urine is and has been healthy all through the period of our observation. Heart's sounds are healthy. On admission, very forcible pulsation was seen and felt over an area reaching from xiphoid cartilage to one inch above the umbilicus; it extended to about two inches on either side of the middle line. The pulsating mass,

the expansion of which was equal in all directions, was felt to be about the size of a small cocoa nut Over it was heard a very loud, coarse murmur, systolic in rhythm. Over the spinal column, which was not particularly painful to the touch, was heard a loud, systolic bruit, heard best from the two last dorsal spines to the level of the third lumbar vertebra. I put him upon 10 grain doses of sodium iodide, and gradually increased it until, for the last three months, he has been taking 120 grains three-times-a-day. No bad effects have followed the administration of this drug. On the contrary, pain has entirely disappeared from the back and legs, the sensation of pulsation is no longer felt by him, and, at times, cannot be seen by us; the loud, systolic murmur has disappeared at the back, and the pulsating mass has diminished in size from a cocoa nut to an orange. Some of you may have read the correspondence published lately in the *British Medical Journal* upon the effects of large doses of the iodides. Balfour, of Edinburgh, believes that it is inadvisable to give more than 30 or 40 grains of the iodide in the treatment of aneurism, maintaining that doses beyond this produce such a reduction of arterial tension, that the circulation being accelerated, no rest is given to the blood in the sac of the aneurism, and that the general nutrition is rendered imperfect. Now, frequently repeated sphygmographic tracings taken in this case, do not show very low arterial tension; and, strange to say, his pulse has scarcely altered in the number of its beats during the period he has been in the hospital. When admitted it was 84 per minute; at present it ranges from about 74—90, and it has occasionally been as low as 66. No doubt the prolonged rest in bed and the restricted diet have contributed to the improvement; but I claim much for the iodide of sodium, and particularly the very large doses. While relief to pain was got by 30 grain doses of iodide of sodium, it was only when the very large doses were reached that the pulsating mass was seen and felt to undergo a rapid diminution in size. I believe the sodium salt to be better borne by the stomach than the potassium, and less irritating in its action upon the muscular system in general.

Dr. Drummond: I do not like to raise the question whether it is fair to say of Dr. Oliver's case that it is one "successfully treated." That is a phrase much in vogue with the surgical staff, and we physicians, are generally too modest to assume it. However, in this case exhibited by Dr. Oliver as successfully treated, I find there still remains a large pulsating tumour in the abdomen, and, over it, a murmur is distinctly audible, a condition of matters which, to my mind, is not compatible with successful treatment. With regard to the patient shewn by Dr. Limont, that, I must say, is one which to me appears a very good case for treatment by compression. The treatment by ligature is not an enticing one, and the results are, at least, very unsatisfactory.

Mr. Page: Dr. Limont asks for an expression of opinion on two main points in reference to his case: first, as to the seat of the aneurism; and, second, as to the best method of treatment. As regards the first, I should say that the aneurism is situated well down towards the division of the aorta; and, with reference to the second, bound as one is by the surgical traditions of the hospital, one would naturally give a preference to the treatment by compression. I have only once attempted this in a similar case, and in that the sac ruptured, and the patient died. A great deal of the credit of compression is due to Dr. Heath, who long ago adopted this method, though, in his case, if I remember rightly, the patient died of an aneurism produced by the pressure. Between the two operations of pressure and ligature there is not much to choose as regards results, for as many have died from the effects of one as of the other. But, if ligature were decided upon in this case, I should not advise getting at the aorta from behind, but opening the abdomen, and performing the intra-peritoneal operation. An animal ligature should be used, and the aorta should not be ligatured at once, but should be gradually curtailed in calibre. Though all the previous cases reported have died, I think we ought not to be prevented from that consideration by adopting the operation in this case. The same argument would hold good in a large number of other surgical procedures, which, though formerly nearly always fatal, are now, with improved methods and accessories, daily practised with success.

Dr. Limont: Only one case has, I submit, been lost as the direct result of ligature, and that one was lost because a permanent ligature was used.

Dr. Oliver: Dr. Drummond's strictures on my case, are, I think, hardly fair. The tumour has been reduced from the size of a cocoa nut to that of a very small orange, and the abdominal pulsation remaining is due to this solid tumour lying upon the aorta. The abdominal bruit, too, is due to the roughened interior of the aorta, or is caused by the small hardened tumour pressing upon it. On the other hand, we have a complete disappearance of the murmur formerly heard in the back, a fact which points to consolidation of the sac in this direction. We have, too, a total absence of the extreme pain which the man formerly suffered, and, taking these facts into consideration, I felt myself fully justified in describing the case as one "successfully treated." I never said it was cured in the sense that all traces of the aneurism had disappeared.

NAEVUS OF SCALP.

Dr. Arnison: There is nothing remarkable in this case, which is one of naevus of the scalp of considerable size, and the point I wish to direct attention to is one of treatment. In operating for

this condition, one has choice for four methods of procedure: (1) by ligature, (2) electrolysis, (3) escharotics, (4) cauterisation, this last being accomplished by red hot needles. As regards the method by ligature it is objectionable as leaving behind an ugly scar. Electrolysis I have had no experience of, and the disadvantages of caustics are obvious. In case of using red hot needles, however, you get cure in process of time, with practically no inconvenience. The method I adopt is to take a hare-lip pin and three spirit lamps, set in a row, so that the needle passing through all the flames becomes heated in its whole length at once. The needle is then caught in forceps and passed into the base of the naevus, traversing the growth to the opposite side, but without protruding the point through the opposite skin. This naevus has been cured at three sittings, at each of which the treatment was the same, and there was no bleeding to speak about at any of the sittings.

CASE OF NEPHROTOMY.

Dr. Arnison: A good deal of the interest of this kidney, which I show, hangs on a point of diagnosis. Five or six months ago the man, from whom this was removed, had a most severe attack of renal colic, followed, a short time afterwards, by the appearance of blood in the urine he passed. These attacks came on from time to time, and, when I first saw him, there were constantly recurring attacks of the colic. He was passing blood and pus with his water, was very much emaciated, and, on examination, we found a distinct hardness around the left kidney. Putting all the points together, we were led to the diagnosis of stone in the kidney, and the operation of nephrotomy was decided upon. In cutting down upon the kidney, we came upon several abscesses containing gritty material, but no stone could be detected after the most careful search. The patient died of shock about 48 hours after the operation. When the kidney was exposed during the operation, it arose in my mind whether it would not be better to remove the whole structure, but I thought it better not to do so.

Prof. Buchanan: If I had a nephrotomy to do again, I should leave no part of the kidney, but remove the whole of the structure.

Dr. Arnison: As I said, we found no stone at the operation; and, *post-mortem*, there was no stone discoverable in the kidney or any other part of the urinary tract, and this in spite of the fact that no stone had been passed during life, and the constant attacks apparently indicating stone attempting to pass into the bladder.

SURGERY OF THE FACE AND MOUTH.

Mr. Page: As not unfrequently happens in hospital practice, a number of similar cases have quite recently come under my notice. They illustrate remarkably well some of the diseases of the jaws. I

thought possibly the members of this Society might be interested in seeing, at one meeting, the group of cases, and, at the risk of occupying too much of your time, have collected them here this evening.

Case I.—This patient, aged 59 years, was admitted into the Newcastle-upon-Tyne Infirmary, under my care, October 28th, suffering from a large tumour of the right superior maxilla, of eight months' growth. The accompanying wood-cut, which the Secretary has been good enough to have prepared, conveys a better idea of the appearance of the patient than any description I can give you. I may mention there was no enlargement of any neighbouring glands. The tumour was increasing in size, and causing considerable pain and mental distress, in addition to its unsightly appearance. On November 6th, the entire superior maxilla was removed in the usual way, and the patient has made a good recovery. It is worthy of note that the eye-ball retains its normal position, although the support of the floor of the orbit is gone. This is the tumour. It has been microscopically examined by Dr. Limont, who pronounces it to be enchephaloid cancer, and not a sarcoma, as from the history of the case, and the absence of glandular infiltration, I fully made up my mind it would prove to be.

Case II.—J. H., labourer, aged 56 years, came under my care last month, suffering from malignant disease of the lower jaw, of four months' duration. Both sides of the right half of the lower jaw, from the canine to the wisdom tooth, were occupied by a fungating mass of disease which caused the cheek to bulge, interfered with mastication, and gave rise to considerable pain and suffering. The growth was increasing rapidly. In the right sub-maxillary space, these hard glands, the size of walnuts, could be seen. They moved freely beneath the skin. The patient was still a strong man, though he had not led a careful life, and looked much older than 56. On November 16th, the right half of the lower jaw was removed by means of the usual incision, and the glands dissected out of the neck. Before proceeding to remove the jaw, I divided the crico thyroid membrane, and the cricoid cartilage introduced a large tracheotomy tube, and then firmly stuffed the pharynx with sponge, so as to prevent anything entering the trachea. This procedure not only very much facilitates the operation of excision of the lower jaw and is a great convenience to the operator, but also saves the patient from the serious risk always run in these jaw cases from blood finding its way into the lungs, and there giving rise to septic pneumonia. Here is the specimen: Dr. Limont has examined it microscopically, and pronounces it to be encephaloid. I expected it would be found to be cancerous, from the circumstance of its rapid growth and the implication of neighbouring lymphatic glands.

Oxalate of lime calculus from Mr Page's case of Nephro-lithotomy.

Danielsson & Co. London. del & lith.

Case III.—This patient, J. S., a carter, aged 59 years, was admitted under my care, October 1st, 1886, in consequence of a growth springing from the region of the intermaxillary bones. The growth was about the size of a pigeon's egg, and caused considerable deformity by thrusting up the lip and nose. It was first noticed some six months' ago, and it has increased in size without causing any pain. October 19th, the upper lip was split in the middle line and dissected off the growth, and then introducing a blade of the cutting bone pliers, first into one nostril and then into the other, a triangular piece from the superior maxilla was cut away with the growth attached. The case has done very well, and the resulting deformity is but slight, capable of being easily rectified by the art of the dentist. I am afraid the specimen is not here this evening. I look upon it as an epulis, and, as the bone from which it sprung was freely removed, I hope we shall have no return of the disease.

Case IV.—J. McK., aged 75, a warehouseman, came under my care last month. Six years' ago, he noticed a small growth making its appearance near the stump of a molar tooth, in his left upper jaw. He says it came down through the fang. As soon as the growth became of any size, patient was in the habit of tearing it away with his finger. It always grew again, and, in time, became too firm and too extensive to be thus removed. On admission, the mouth was occupied by a growth, having the appearance of the mucous membrane of the mouth, about the size of a small egg. It consisted of two parts, one growing from the external margin of the alveolar process, the other from the internal, and, between the two, was a sulcus leading into the antrum. Under chloroform, the growths were torn away, and some of the alveolar process removed. The finger could be passed into the antrum, out of which a good deal of a similar material was removed. All the growths had very much the naked-eye appearance of the ordinary mucous polypus from the nose. Dr. Limont has kindly examined some of them microscopically, and tells me they are fibro-cellular in structure, good examples of the mucous tumour or myxoma.

Case V.—E. D., aged 27, a fireman, was admitted to the Newcastle Infirmary, under my care, October 7th, 1886. In the spring of 1885, he felt, with his tongue, a small projection from the soft palate on the right side. It increased, and in August, 1885, a Surgeon snipped off, with a pair of scissors, a pedunculated growth, the size of a small damson plum. The wound did not heal, and, on admission, an ulcerated surface, about the size of a threepenny piece, was seen at the site whence the growth had been removed. There was no history of syphilis. Patient was treated with large doses of iodide of potassium and small doses of mercury for three weeks without benefit, and then the ulcerated surface was freely scraped with a sharp spoon. This was not followed by any attempt

at healing, and 14 days after the diseased part was freely excised, and there is now some indication of healing, though I am sorry to see a growth is showing itself on the surface of the soft palate on the opposite side. The disease is epithelioma—primary epithelioma of the soft palate.

MALPOSITION OF THE TESTIS.

Mr. Page: This lad, aged 16 years, is the subject of a very rare misplacement of the right testicle. The gland, which is not atrophied, lies in the sub-cutaneous cellular tissue of the thigh, a little below Poupart's ligament; and it may possibly have reached that situation by passing through the crural canal and the saphenous opening. Either that, or it has been pulled down into the thigh by those fibres of the gubernaculum which are occasionally found passing downward into Scarpa's triangle (Lockwood.) Sir W. Turner tells me he has never seen the testicle in this position. Curling, in his work on the testicle, mentions one such case coming under his observation, also on the right side.

I do not know that any connection can be traced between the malposition of the testicle and the disease for which this youth came under my observation. He was admitted into the Newcastle-upon-Tyne Infirmary, under my care, last March, with a large ulcer on the dorsum of his foot, implicating the bones, and of nine years' standing. The thighs were of equal length, but the right leg was two inches longer and two inches more in circumference than the left. The right limb, usually, had a large patch of redness upon some part of its surface, and was generally covered with sweat, and these phenomena were confined to the limb. I do not think they were due to blood-poisoning, because the temperature of his body was normal, and there were no signs of disturbance of the general health; and, moreover, they continued after the foot was removed and the wound healed. I am inclined to think they, and the ulcer, too, were evidences of some perverted innervation; and am not sure that the misplaced testicle may not have had some connection with them, though I cannot make any suggestion in the way ot explanation.

CANCER OF THE MAMMA IN A MALE.

Dr. Bramwell: R. M., aged 55, residing at Elm Street, Jarrow, was admitted to the Newcastle Infirmary, on November the 20th, complaining of a small swelling in the breast, which had been present for 14 years, but had taken an active growth during the last three months. There was no trace of hereditary disposition to carcinoma, and he had been an exceptionally healthy man. The tumour was first noticed in the left breast 14 years ago, situated about an inch above and to the outer side of the nipple. It was hard, round, and freely movable.

It remained in this condition up till the latter end of July, when, without any exciting cause, it began to grow larger, and give rise to shooting pains. At present, there is a swelling the size of a fig, firm, movable, attached to the nipple, and affecting the skin, which has a thin blueish appearance at one point. There is some enlargement of the axillary glands, but not to any great extent. He has never, so far as he can remember, suffered from any discharge or excoriation of the nipple.

DERMOID CYST OF OVARY.

Dr. Limont: The patient from whom the cyst was removed by Mr. Page, is aged 18, and single. She was admitted under my care in the beginning of April, 1886. She complained of a swelling in the abdomen, and of pain which had troubled her for about eight months. Her menstrual functions were normal previous to this illness, save for somewhat severe pain during the first day of the flow.

About eight months ago, she was suddenly seized with sharp cutting pain in the left iliac region, and vomiting. These have continued ever since, more or less. Menstrual discharge is regular, but scanty, and accompanied by much pain.

A nearly round tumour was found in the abdomen reaching to the umbilicus, and lying much more to the left than to the right side. It had indistinct fluctuation, but a hard part could be felt stretching up from the left iliac into the left lumbar region, and much resembling the colon, distended with fæces. On passing a catheter, the urethra was found displaced to the right, and, on bi-manual examination, the uterus could be indistinctly defined lying backwards and to the left. Some turbid non-glairy fluid was withdrawn by means of a hyperdermic needle. It contained none of the so-called ovarian cells, but numerous leucocytes, which were very fatty, also a large quantity of free fatty granules, and some masses of yellowish brown pigment.

The diagnosis was "cyst, probably dermoid in character."

The patient was emaciated and weak, and suffered greatly night and day. A hectic condition was also sometimes noticeable. The temperature before the operation was normal, except on one or two occasions.

The operation was performed by Mr. Page on the 5th of May.

On cutting through the abdominal walls a very vascular layer was met with, which consisted of thickened perit neum and omentum, and which was extensively adherent to the tumour. The sac contained a large quantity of fluid similar to what was drawn off by the hypodermic needle, and also a thick pulvaceous material, of bright yellow colour, consisting of a greasy substance, mixed with a large quantity of hair.

After the tumour was removed, fœtid pus began to well out of the pelvis; it was lying in Douglas' pouch. Running up from the left iliac into the left lumbar region, was found the long mass previously felt bi-manually. It was a second large abscess cavity, apparently in the cellular tissue. These abscesses were carefully emptied. The peritoneal cavity was filled with a weak solution of Condy's fluid; a large drainage tube was put in each of the abscess cavities, and the wound stitched with silk woven cat-gut.

The cyst, after removal and being emptied, collapsed to about the size of three fists. Its outer surface was rough and vascular; its inner surface presented a few hairs and numerous mouths of dilated sebaceous follicles. Two hard nodules could be felt, apparently bone or teeth. A section of the walls is placed under one of the microscopes. It shows the inner surface to be formed of irregular fatty epithelial cells. Running through between these are very large sebaceous follicles and a few hairs, and, in some sections, are also a very few sweat ducts. Beneath the epithelium is a connective tissue, in which there is a considerable quantity of unstriped muscular tissue and numerous blood vessels. The solid contents contained fatty degenerated cells, fat granules, masses of brown pigment and hairs, some of which were a considerable length.

For a week after the operation the patient did very well, though there was a very free discharge from the tubes. At the end of this time, however, fæces appeared in the tube which led from the pouch of Douglas. This continued for a week and then ceased. Patient then made a steady and rapid recovery, taking food well.

Early in June, she was removed from the ovarian room to one of the small wards. Two days later she was suddenly seized with nausea, vomiting, pain in abdomen, and marked collapse. For several days she remained in a very critical state, with a temperature of 100° to 103·5, and pulse 120, and quite unable to be given any food by the mouth. After being several days in this condition fæces again began to discharge by the wound. From this attack the patient recovered slowly, but, by the middle of July, the wound was quite healed, and she was able to go about. By the end of July she was able to go about all day, and left for the Whitley Home. When last seen she was in perfect health.

POLYPUS OF THE UTERUS.

Dr. Murphy: I bring this specimen before the notice of the Society, to illustrate the difficulty that has frequently been experienced in diagnosing a sessile polypus springing from the fundus of the uterus, from inversion of that organ. I am indebted to my friend, Dr. Lyon, of Houghton-le-Spring, for the opportunity of showing the specimen, as he kindly sent the patient into the Sunderland Infirmary some months ago, under my care, with a

note that she had been suffering from hæmorrhage for some time, and that he had diagnosed a polypus some months previously, but that she refused to have it removed.

On admission, she presented a very blanched appearance, and was in a very exhausted condition. A tumour protruded from the os, of exactly the size and shape of an inverted uterus, of which I have been so fortunate as to see three examples, and round this a rim could easily be felt, which completely surrounded it on all sides, the sound passing in for less than a quarter-of-an-inch, but in no place exceeding this distance. It thus, at first sight, seemed to be an inversion; but the history was in favour of a polypus, as the hæmorrhage only dated back for eighteen months, and her last confinement was 16 years before; and, moreover, I have such confidence in Dr. Lyon's diagnosis, that I could but regard it as a polypus. I, however, administered chloroform, and then passed my whole hand into the rectum, when I could find a distinct dimple over the fundus, but not so large as one finds in inversion; and could I, at the same time, have had a hand in the vagina, all doubts could have been cleared up; but, unfortunately, the female pelvis is so constructed as not to permit this, and I had to content myself with a sound in the vagina, and, afterwards, in the bladder; and, even with this, so great was the difficulty, that I could not even then form an absolute diagnosis So, as the hæmorrhage had ceased for a few days, I determined to wait a little before operating, and thus permit the patient to gain strength and pick up a little. This, unfortunately, she never did, but died of exhaustion a few days after her admission, without any return of the hæmorrhage; and, if the members will examine the specimen now being passed round, they will be in a better position to recognise the difficulty of diagnosis than by any verbal description; I would only remind them that an inverted uterus has very frequently been removed for a polypus, and also an attempt made to invert a polypus into a uterus, if I may so describe it, and Thomas and Emmet relate some most instructive and interesting cases of both mistakes. P.S.—In the *British Medical Journal* for January 8th, 1887, Mr. Lawson Tait relates a case where he amputated an inverted uterus in mistake for a polypus.

DISEASED KNEE-JOINT.

Dr. Murphy: These specimens, Sir, are the ends of the femur and tibia, and a patella in two portions, which I, yesterday, removed from a patient at the Sunderland Infirmary, and the following is the history:—

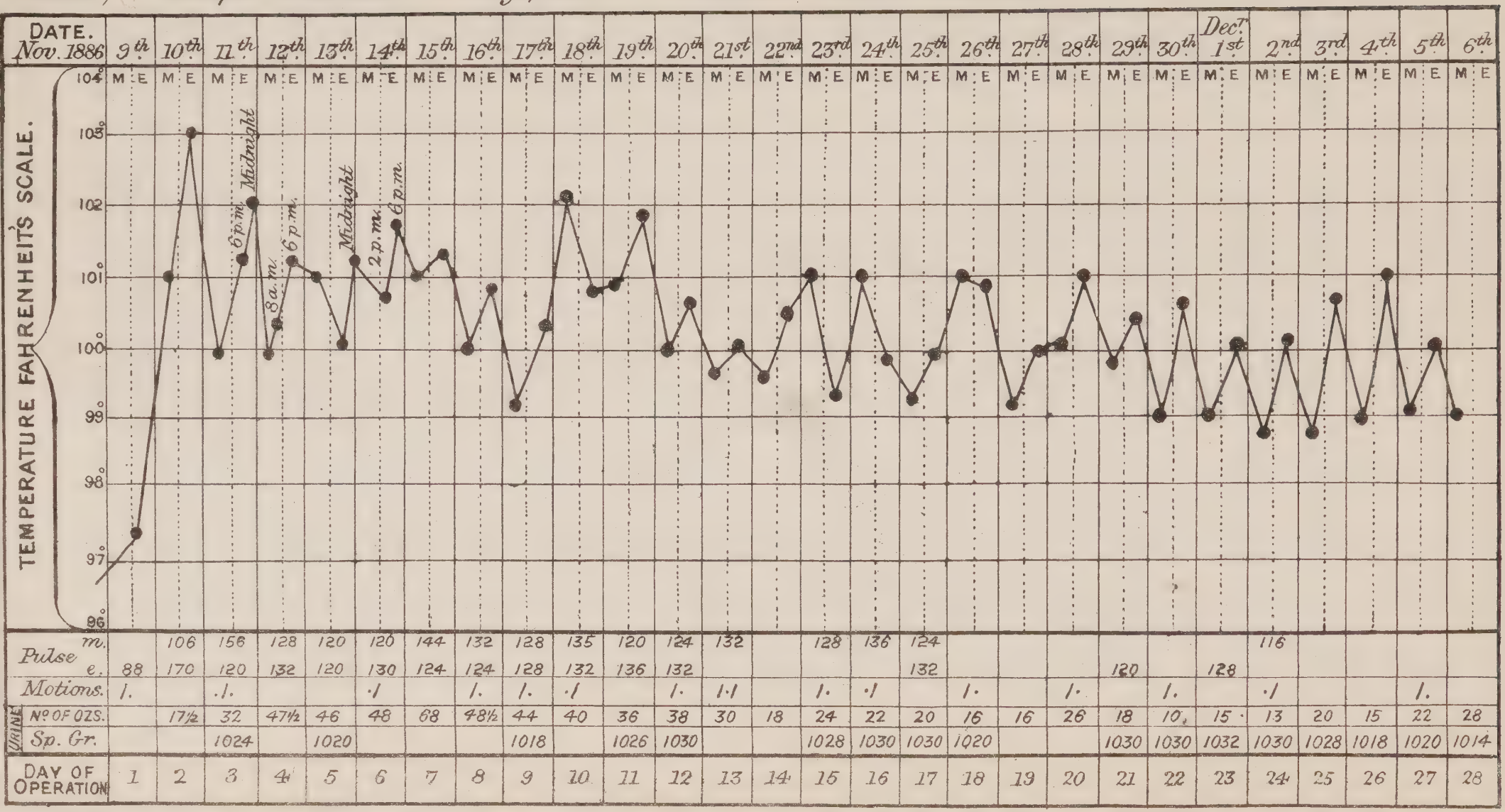
Mrs. W., æt 40, was admitted, under my care, on June the 6th, 1885, suffering from a transverse fracture of the patella, which she sustained the previous day. She was treated on an inclined plane

and with strapping, and discharged herself six weeks afterwards, with very fair ligamentous union. She could walk fairly well, and, after a few weeks, walked nearly as well as ever. On October the 4th, 1886, in reaching over the fender, she fell heavily on it, striking it with the centre of her knee. She suffered very severe pain, and was assisted to bed, when she bound her knee very tightly with a bandage, and, on removing it four days afterwards, found an opening on the top of the knee from which pus was freely issuing. She, therefore, applied for re-admission, and she was at once taken into the Infirmary. I then found a large opening between the fragments of the patella, which easily admitted a finger, and the knee-joint was full of pus, but there was no roughening of the cartilages. I made two large lateral openings and put in two large drainage tubes, and had the knee-joint freely washed out daily with antiseptic lotions, but without any very beneficial result, as you will see on reference to this chart, the temperature was as unsatisfactory as it could well be, reaching 103° and 104°, and then falling suddenly to normal or below it. I then tried a method of irrigation, introduced by Mr. Treves, which consists in passing two large drainage tubes through the joint, and attaching to each an india-rubber tube, which is made to act as a syphon from a large bath of a weak solution of thymol. This solution is then allowed to flow continuously, night and day, without intermission for about a month. The drainage tubes were introduced through the wound in front of the joint, and each came out through one of the lateral incisions which were made as low as possible. This irrigation brought away a large quantity of pus every day, and reduced the temperature and improved the condition of the patient generally; but, after a month's continuous trial, I was forced to perform excision as the only chance of saving the limb, and this I accordingly performed yesterday, and the patient is in as satisfactory a condition to-day as I could desire. I take it, the pathology of the case is that the fall set up severe inflammation, with effusion into the joint, and that this effusion found exit at the weakest point, namely, between the fragments of the patella, and that an opening into the joint having been thus effected, suppuration ensued. January 24th, 1887.—The wound is now healed, and the bones well consolidated; the limb is in a good position, and all looks well for an excellent result.

[Dr. Murphy's remarks on Sarcoma of the Testicles are held over for a future number of the Transactions, to permit of the publication of the Chromo-Lithographs of the specimens.—J.D.F.]

CLINICAL CHART OF TEMPERATURE, &c.

Name, Joseph Cruddas. Age, 14. Disease, Renal Calculus.



REPORT OF A SUCCESSFUL CASE OF NEPHRO LITHOTOMY, PATIENT AND CALCULUS SHOWN,

By FREDERICK PAGE, Honorary Surgeon to the Infirmary, Newcastle-upon-Tyne ; Examiner on Clinical Surgery, University of Edinburgh.

Mr. President and Gentlemen,

Nothing illustrates better the advance operative surgery has made in late years, than the freedom with which internal and vital organs hitherto appropriated by the Physicians, are now explored and cut into by the Surgeons. In 1882, a member of this Society, Dr. Drinkwater, of Sunderland, showed us a patient, in whose lung he had opened and drained an abscess, thus saving a valuable life. Mr. Victor Horsley has, on more than one occasion, successfully removed a growth from the substance of the brain. The liver and kidney have been cut into for the purpose of evacuating pus several times in the Newcastle Infirmary recently. A short time ago, Dr. Arnison removed the spleen, and Mr. Dodd the patella. The larynx, kidney, and uterus have been successfully extirpated. Mr. Jessop, of Leeds, has cut away some inches of small intestine and sutured the divided portions of gut successfully. Indeed, I know of no organ the Physician can now claim exclusively as his own, with, it may be, the exception of the heart. As far as this Infirmary is concerned, Dr. Oliver seems to have monopolized the heart, and hitherto, at least, strictly preserved it from the prying eyes and hands of his surgical colleagues. In comparison with most of the operations mentioned, the case I am about to relate is perhaps of secondary magnitude; still, cutting a stone out of the kidney is a comparatively uncommon procedure and worthy of record. Only some 20 cases were known to Mr. Morris, when he wrote his recently published work on the kidney ; and, so far as I am aware, this is the first case of nephro lithotomy which has been reported, if not the first performed in our neighbourhood.

J. C., a clerk, aged 14 years, was admitted into the Newcastle-upon-Tyne Infirmary, August 12th, 1886, under the care of Dr. Limont. I am indebted to Dr. Waldy, the Resident Physician, for the following previous history of the patient :—The lad has lived all his life at Beamish, and, with the exception of the symptoms I am about to narrate, has suffered from no illness nor from any accident. Ten years ago, blood was first noticed in his urine. It would appear for days in succession, and then not be seen for weeks. Running, jumping, or lifting would invariably be followed by bloody urine. Pain, more or less severe, generally accompanied or followed the bleeding. He describes this pain as being often very acute, and, latterly, like a knife passing through his left loin, round the belly into the left testicle, and

down the inner side of the left thigh ; sometimes, too, it shot across the loins. He has often passed red sand, and, whilst under Dr. Limont's observation, had occasion to make water frequently, usually rising two or three times during the night for this purpose. He has also had several severe attacks of renal colic. Pressure over the left kidney, particularly at one defined spot, gave rise to acute pain. Dr. Limont came to the conclusion that a calculus was lodged in the left kidney, and asked me to see the lad with him, with a view to operative interference. I saw him early in November, and agreed with Dr. Limont's views. On November 9th, the kidney was exposed by a transverse incision, five inches in length, at right angles to the spine, and pricked in various directions with a long needle till a stone was detected situated deep in the kidney at about its centre. The friable substance of the gland was readily broken down by the finger, and the stone felt, separated, however, from the finger by a tough membrane. The stone slipped many times from under the finger, and I could not tear through with my nail (which was, unfortunately, that morning, cut quite short), the tough membrane I have mentioned. Dr. Arnison, however, easily scratched through this membrane and liberated the stone. The operation was a long one, and accompanied by considerable bleeding. The lad was put to bed and rallied slowly. At night, his temperature was 97·5, and his pulse 88. In the morning the temperature was 101, and the pulse 106 ; and, in the evening, the temperature rose to 103, and the pulse to 170, the breathing being very quick. He was found to have double capillary bronchitis, with pleurisy, and continued in a critical condition for many days. I believe his lung symptoms were due to the chilling action of the spray during the operation, and regret very much its employment. The accompanying chart shows the quantity of urine passed daily, and the condition of the pulse and temperature of the body for 28 days after operation. On the 7th day he passed 68 ounces of urine, the largest quantity during any one day ; and, on the 22nd, only 10 ounces, the smallest quantity in any one day.

This is the stone ; it weighs 24 grains, and Professor Bedson tells me it consists chiefly of oxalate of lime. It is a satisfaction to me, sir, to show you this calculus, but I have a still greater pleasure in showing you the patient from whose kidney it was cut. I must not conclude these remarks without expressing my thanks to Dr. Maynard, and to nurse Hopper for the care they have so unremittingly bestowed upon the youth. I am quite conscious that the pleasure I derive from showing you this patient, cured, as I hope, of a most painful disease, is due, in great measure, to the ever watchful attention of a devoted house surgeon, and to an excellent head nurse, and I have much satisfaction in thus making the acknowledgment of my obligation to them.

Mr. PAGE'S CASE OF GENU VALGUM, TREATED BY McEWEN'S OPERATION.

BEFORE OPERATION. AFTER.

CASE OF MEDIASTINAL TUMOUR.

Dr. Drummond showed a man in whose case mediastinal growth had been diagnosed.

The patient was admitted into the Infirmary on the 28th of November of the present year, on the recommendation of Dr. Pope, of South Shields, under whose care he had been for a few weeks. He was complaining chiefly of pain in the chest, cough, spitting of blood, and shortness of breath. He was 46 years of age, and, since 1866, had been a dock labourer. In that year, he had been "invalided" from the army, for syphilis, after 10 years' service.

He stated that he recovered from the attack of syphilis, and remained in comparatively good health until four or five months before his admission, when he began to complain of attacks of shivering, which were preceded by the feeling of heat, but without any sweating. These attacks returned two or three times a week for three or four weeks, and then ceased, when cough, with occasional perspirations, commenced to trouble him, and the cough has continued up to the present. Shortly after the cough began, about fourteen weeks ago, the patient discovered a "lump" in the right side of the neck, above the sternal end of the clavicle; this was evidently glandular, and, at first, was moveable. A few weeks later, a similar nodule was felt, in a corresponding position, on the left side of the neck. The pain was first complained of ten weeks ago, or shortly after the swelling appeared in the neck. This, from the first, was of a shooting character, and was most marked beneath the manubrium sterni, and was by no means constant. Then shortness of breath affected him, and, about the same time (two months before admission), hæmophysis first made its appearance. It was, also, about the same time that he observed the enlarged veins on the surface of the abdomen.

Beyond syphilis, the only previous illness of any note that the patient has suffered from was ague, several attacks of which he had in India. He has drunk heavily of beer. He was first syphilized when he was twenty years of age, *i.e.*, twenty-six years ago. His family history throws no light upon the nature of the case.

His condition, on admission, was as follows;—He was robust and florid in appearance, and totally free from any cachexia. The redness of the face, he stated, came on with the cough and other symptoms of his illness. There was well marked evidences of old standing syphilis. He had lost a portion of the left side of the nose, for example, and legs, arms, and head showed numerous scars which were undoubtedly syphilitic. The front of the chest was œdematous, and numerous small purple veins could be seen scattered over the surface, especially in the mid-sternal region, at the level of the third and fourth ribs. From the thorax coursed several veins which ran together on each side to make the large and

turtuous superficial epigastric veins, which were very conspicuous as they descended to enter the internal saphenous veins at the upper part of the thighs. The root of the neck was also somewhat œdematous, but the veins in this region appeared normal, and there was no cyanosis of the face. The veins at the upper part of the brachial regions were increased in size, but there was no œdema of the hands. On each side of the neck, above the sternal ends of both clavicles, could be felt hard and fixed masses, evidently glandular, that on the right side being the larger. The front of the chest was, generally speaking, flattened, though there was some slight degree of bulging in the neighbourhood of the right nipple, or rather the bulging was most prominent between this point and the sternal attachment of the right second rib. The expansion of the right side of the chest was relatively diminished. A distinctly dull area, triangular in shape, could be mapped out by percussion. The base of the triangle being bordered by the right clavicle, and the top of the sternum above, and the sides formed by lines drawn from the left sterno-clavicular articulation down along the left para-sternal line to the lower border of the fourth rib, and from this point to the outer third of the right clavicle. Outside this space, both to right and left, there was a resonant note. Careful examination failed to elicit any pulsation. On auscultation, the cardiac sounds were well conducted in the dull area, but there were no murmurs. The respiratory sounds here were tubular, and distinct pectoriloquy was heard. Outside the triangular space referred to, the lung sounds were harsh, but otherwise, unaltered. At the back there was dulness down to the level of the fourth dorsal vertebra, then a resonant area, and dulness again was found at the base. The breath sounds over the whole of the back were harsh and tubular, whilst the vocal sounds were distinctly increased.

Dr. Drummond referred to the diagnosis and pointed out his reasons for discarding aneurism, viz., absence of pulsation; absence of murmur, or of intensification of the second sound of the heart; the enlarged and fixed glands in the neck; the great area of superficial dulness, etc. He stated that the diagnosis, in his opinion, lay between syphilis, lymphoma, and carcinoma; he was inclined to regard the case as one of carcinoma of the lung and mediastinal glands. He hoped, on a future occasion, to supply the details of the sequel of the case.

ON PARALYSIS FROM PERIPHERAL NEURITIS.

(Continued from page 55.)

By DAVID DRUMMOND, M.D., Physician and Pathologist to Newcastle Infirmary.

ALCOHOLIC PARALYSIS.—*Continued.*

It is common to meet with certain contractures in peripheral neuritis, and patients suffering from the alcoholic variety are by no means exempt from this motor impairment. Thus, during the later stages of the disease the legs may be flexed at the knees by rigidity of the hamstrings; or, again, the feet may be forcibly extended through contraction of the tendo achilles; or, as occasionally occurs, the condition of the hands, known as the *main en griffe* of Duchenne, may be well marked. This latter deformity I have much more frequently seen in non-alcoholic forms of peripheral paralysis than in the form under consideration, though contractures of the lower extremities are by no means rare in alcoholic paralysis.

Dr. Hadden has observed nystagmus in some cases, but I believe this to be an extremely rare feature of chronic alcoholism. All observers have been struck with the mental condition that so frequently accompanies alcoholic paralysis Of the twenty cases referred to, in only three was I able to satisfy myself that no mental deficiency existed. In some it was well-marked, while, in others, it had to be sought for with care. There is generally loss of memory, which, in the female, almost invariably extends to her habits of intemperance. Irritability, with general mental hebetude, is seldom absent, and, in some cases, cunning and distrust of near relations are engendered, whilst there may be delusions.

Before proceeding to discuss the pathology and diagnosis, I may, with advantage, adduce one or two examples of alcoholic paralysis which, I think, will be found to bear out the above short clinical description of the disease.

Case I.—Emma D., aged 36, married, the mother of two children, of no special occupation, was admitted into the Infirmary, on September 24th, 1884, complaining of loss of memory and paralysis of the lower extremities. She stated that until her marriage she had enjoyed good health. After the birth of her first child, she suffered from peritonitis, and a similar attack followed the birth of the second. She had two miscarriages, but, in both instances, the fœtus was living. Two years before admission to Hospital she had a slight attack of paraplegia, with pains in the legs, symptoms which lasted about twelve months, when she recovered completely. She has been subject to bilious attacks, with headache, for some years. She admitted that she had acquired intemperate habits, and owned a partiality for beer, though she occasionally drank spirits. For many years she had led a

very sedentary life. The illness for which she was brought to the Infirmary began two months before she came under my notice. At first, she complained of numbness in the soles of the feet, with a feeling of "pins and needles," and then pain was noticed in the calves of the legs when she walked. By degrees, the legs became weak, and walking grew more and more difficult; the knees frequently gave way under her, and the weight of the body gave rise to pain in the feet. Later, a sensation of con striction developed round the legs below the knees, and the tingling of the soles of the feet gave place to the feeling as if they were padded with hair. Soon the weakness of the legs became so pronounced that she was obliged to take to her bed. The memory, which was from the first very defective, failed her almost entirely, especially for recent events, and giddiness and sleeplessness added considerably to her troubles. When examined after admission, the following facts were noted :—Of medium height and build; is pale, and slightly cyanotic about the lips; memory very bad, is easily led to contradict her previous statements. She is unable to walk, and generally lies on her side, with the legs drawn up and flexed at the knees; T. 99°; pulse 80, regular, very weak. Complains of tingling in the soles of the feet, and of a girdle sensation round the calves. Pressure on the soles produces a painful burning sensation which appears to be superficial. Squeezing the muscles below the knee – anterior tibial and calf regions—produces great pain. Efforts to straighten the legs, both active and passive, are very painful, especially in the quadriceps muscles She is much troubled with giddiness, headache, sickness, and sleeplessness. The appetite is bad, the tongue is coated, and the bowels are constipated. Tactile impressions diminished in areas, and painful impressions lost here and there on the surface of the feet and legs. There is marked motor paralysis and wasting; the muscles most affected are the quadriceps femoris and those of the anterior tibial region. The feet are extended at the ankle. Plantar reflex and knee-jerk entirely absent. Abdominal reflex marked on the right side, absent on the left. No rectal or bladder disturbance; no bed sores; reaction of degeneration imperfectly marked, viz., complete loss of reaction with the interrupted current, and a very feeble contraction on the application of a slowly interrupted but strong continuous current. Slight paralysis of the extensors of the upper extremities could be made out, but there was no loss of electrical excitability, and but slight tenderness of the muscles on pressure, and no sensory impairment. This patient made slow but steady progress towards recovery. The first distinct signs of improvement were in the direction of loss of pain, the muscular pain lasting longer than the superficial cutaneous hyperæsthesia of the soles of the feet, whilst the pain felt on attempting to extend the legs disappeared before that caused by pressing the paralysed muscles. Soon after the hyperæsthesia vanished the

ordinary sensibility of the skin returned, and, on the 28th of November, it was noted that the tactile sensibility of the skin of the legs was normal, and that painful impressions were only slightly diminished. Shortly after this, motor power had so far returned that the patient could walk a little by herself. Then the plantar reflex appeared, and, for a time, seemed to be somewhat increased; but the knee-jerk remained absent all the time the patient was under observation. She was discharged well-nigh recovered about four months after her admission.

This case furnishes a good example of a moderately severe attack of alcoholic neuritis that ran a favourable course. I shall now give a brief account of a still more pronounced case in which death resulted from inflammation of the lungs. The patient was placed under my care by Dr. SLATER, of Newcastle, who kindly supplied me with the earlier details of the case. A widow, aged 58, the mother of eight children, complained from time to time for many months of dyspepsia, accompanied with vomiting, and rheumatic (?) pains of the feet and legs. By degrees her legs became numb and powerless, and walking was interfered with. When she first came under observation in August, 1886, she was confined to bed; her feet were swollen and pitted on pressure, and were extended at the ankle, though slight flexor movements remained. The arms were also affected, and the muscles of both upper and lower extremities were soft and flabby, and extremely tender to the touch, indeed, the slightest pressure on the anterior tibial and calf muscles caused her to scream. The feet were likewise very tender, and passive movements caused severe pain about the knees and ankles. Knee-jerk and plantar reflex were absent. There was anæsthesia—especially loss of painful impressions—on the dorsum of the feet. Soon the ankle drop became complete, whilst the power of flexing and extending the legs was lost. The paralysis of the extensors of the hands and fingers then increased, and drop-wrist developed. She now lost control of the bladder and rectal sphincters, and suffered greatly from thirst and constipation. The memory was very defective, and occasionally she showed a tendency to delirium The paralysed muscles atrophied rapidly, especially those of the anterior tibial region—tibialis anticus, for example, and electrical (faradic) excitability disappeared. The pupils were contracted, and responded to efforts of accommodation but not to light. She steadily grew more and more feeble, and a bed sore developed. On the 5th of October pneumonia set in, and the patient died on the 8th of October. Permission could only be obtained for a very limited *post-mortem* examination; however, portions of the great sciatic, anterior tibial, and musculo-spinal nerves were obtained for microscopical examination. It should be stated that this patient had been, for some years, addicted to habits of intemperance; whiskey was her common stimulant.

The following case is of great interest, as it tends to show that, in alcoholic paralysis, the arms may, in some rare cases, bear the brunt of the poison :—

George F., aged 43, a publican, was admitted into the Infirmary, in October, 1886, complaining of loss of power of both arms. He was a heavy drinker. His illness commenced eleven months before with pains in both feet, which, for a short time, interfered with walking. A month subsequent to the commencement of the attack he had an epileptic fit. Soon the pains left the lower extremities, and lodged in the shoulders and arms, and, eight months before his admission, the arms became weak and paralysed, the weakness beginning in both arms at once. At first, the pains and paralysis affected the deltoid regions particularly, so that he could not raise the arms. About a fortnight before I first saw him drop-wrist developed, and, since then, the muscles on the back of the forearm had wasted considerably. When examined, it was noted that he could walk without difficulty. The legs were fairly developed, and, indeed, appeared to be normal, except that the knee-jerk and plantar reflex were absent Both arms were markedly paralysed and atrophied, especially the deltoids and extensors of the wrists and fingers. There was complete double drop-wrist, though the wasting and paralysis were rather more pronounced on the right than the left side The muscles were tender. Analgesia and anæsthesia were present in circumscribed areas. The deltoids and the muscles supplied by the musculo spiral were most affected, including the long supinators. The reaction of degeneration was marked in the musculo-spiral region. This patient, unfortunately, left the Infirmary the day after his admission, and I have not been able to trace the case.

I now turn to the subject of the pathology of alcoholic paralysis, and although I have, without apology or argument, ventured to include the disease in the category of cases of peripheral neuritis, it is important to recollect that, at times, the spinal cord has been found diseased when alcohol alone was responsible for the paralysis. This fact, however, does not invalidate the statement that the symptoms I have described are now generally recognized to depend upon a lesion of the peripheral nerves I have had the opportunity of examining the nerve trunks of two cases, and I shall briefly describe the changes noted. To Dr. Gowans I am indebted for this opportunity, in one instance, as he very kindly furnished me with the details of a case, and allowed me to take part in the *post-mortem* examination. The patient was a woman, aged 42, who died with typical alcoholic paralysis complicating cirrhosis of the liver ; both arms and legs were paralysed, although the latter, in accordance with the usual experience, were decidedly the most affected. We examined the following nerves :—Great sciatic, internal popliteal, external popliteal, musculo spiral, and

ulnar, and, in all, more or less morbid conditions were found. The most striking changes were observed in the sciatic, and these, generally speaking, were characterised by alteration of the nerve fibres (parenchymatous neuritis), though, in places, there was distinct increase in the interstitial substance, especially between the fasciculi. In the smaller nerves, the lesion appeared to be confined almost entirely to the nerve fibres, and seemed to be chiefly degenerative. Where the parenchymatous inflammation was intense the axis-cylinders were markedly changed. In places they were swollen and hypertrophied, or else they had disappeared or were atrophied. The white substance of SCHWANN was here and there conspicuously granular and broken up, so that masses of myelin appeared to be isolated from the fibres. In conducting the microscopical examination, the difficulty of distinguishing between the processes of inflammation and degeneration was necessarily felt, though pronounced interstitial changes, dilatation of blood vessels, and multiplication of nuclei were fairly assumed to indicate an inflammatory lesion. The sciatic, anterior tibial, and musculo-spiral, along with the paralysed extensor longus digitorum muscle of the fatal case, the particulars of which I have related, were also examined. The anterior tibial showed much greater disorganization than the other nerves, indeed, there was scarcely any healthy nerve tissue seen in the sections examined. The morbid changes were largely parenchymatous, though the nuclei of the endoneurium were proliferated, and the walls of the vessels considerably thickened. The muscle showed little that could be found fault with. Here and there, perhaps, the fibres were slightly granular, and the cross striation less pronounced than in health, but lying quite adjacent were fibres in which not the slightest departure from the normal could be recognised, and this was the rule.

It is, undoubtedly, difficult to explain the simultaneous affection of so many peripheral nerves, the centres remaining free, in alcoholism and other conditions wont to give rise to neuritis; and, as is well known, it has been suggested that, although it has often escaped recognition, there must, after all, be some central disturbance responsible for the widely distributed lesion. Notably, ERB and DE WATTEVILLE have advanced the view that a functional disturbance of the motor ganglion-cells of the cord may occasion degeneration of the motor fibres continuous with the anterior roots. BUZZARD, on the other hand, has advanced the hypothesis that the changes in the peripheral nerves may be caused by altered blood supply, through interference with the vaso-motor centres in the medulla and cord. Without venturing to offer an opinion upon these suggestions, I think, in considering the way in which the multiple lesion is produced, due stress must be laid upon the fact that the *materies morbi* is circulating in the blood—the poison of rheumatism, alcohol, the morbid products arising from chill,

for example. And again, it must not be forgotten that the appearances are often those of active inflammation rather than degeneration. But, perhaps, the most damaging argument that can be advanced against the suggestion that the nerve trunk lesions are secondary to toxic disturbance of the trophic cells of the cord, is to be found in the fact, that in the great majority of the cases the anterior roots escape. It would appear to be a fair explanation of the ataxy, so commonly met with in alcoholic paralysis, to assume that in some cases the muscle-sensory nerves are chiefly implicated, for it is unnecessary for me to remind you that to such a disturbance is largely due the inco-ordination of tabes, though, in the latter case, the block occurs in the root zone of the cord.

The diagnosis of alcoholic paralysis is seldom difficult, unless the more typical symptoms are absent, and intemperance is absolutely denied. The early pains may be mistaken for rheumatism, though their situations scarcely correspond; and again, the tenderness of the feet, and feeling of needles and pins in the legs generally, would suggest alcohol. The diseases of the spinal cord with which this form of paralysis might be confounded are numerous, but the greatest diagnostic difficulties arise in connection with acute and sub-acute lesions of the cells of the anterior horns of the cord, and locomotor ataxia. The onset of the attack, which, as we have seen, is usually ushered in by pains, will greatly aid in eliminating polio-myelitis; nor would we expect to meet with anæsthesia in that disease; and, further, the distribution of the paralysis is nearly always symmetrical in multiple neuritis, whereas, in the spinal lesion, it is often erratic. It is also important to recollect that the order in which the muscles are paralysed is different in the two diseases. In alcoholic neuritis, the first muscles of the lower extremities to be affected are those supplied by the anterior tibial nerve, especially the flexors of the foot at the ankle, then the extensor of the knee, and, in the upper extremity, it commences by attacking the extensors of the wrist and fingers. On the other hand, in the spinal affection, the following order is observed:—feet, leg, flexors of thighs, and extensors of thighs, and, in the arm, the small muscles of the hand are affected before the extensors of the forearm. The most important point to be attended to in distinguishing between tabes and alcoholic paralysis are muscular hyperæsthesia, paralysis of the ankle flexors, and atrophy, with loss of electrical excitability, all common features of the latter disease. Nor are mental symptoms often observed in locomotor ataxia.

The prognosis and treatment will be discussed when general multiple neuritis (non-alcoholic) is under consideration.

(To be continued.)

NORTHUMBERLAND AND DURHAM MEDICAL SOCIETY.

SESSION 1886-7.

JANUARY MEETING.

The Fourth Monthly Meeting of the Session was held in the Library of the Newcastle-upon-Tyne Infirmary, on the evening of Thursday, January 13th, Dr Hume, President, in the Chair.

NEW MEMBERS ELECTED.

The following gentlemen were unanimously elected members of the Society:—

M. B. Sergeant, L.R.C.P. (Edin.), Gateshead.
R. A. Brewis, M.B., C.M., Newcastle-upon-Tyne.
John Hedley, M.R.C.S., Middlesborough.

THE ELEMORE EXPLOSION.

Dr. Adamson: I have to ask you, Sir, if it be the pleasure of the Society to set aside a portion of the time of the February meeting to enable me to bring forward a report on the late explosion at the Elemore Colliery. I think such a report, dealing with the nature of the injuries, &c., might be of some value to members. If the request is granted me, I propose that Her Majesty's Inspector of Mines, Mr. Atkinson, the manager of Elemore Colliery, and one or two other laymen directly interested be allowed to attend. There is precedent for such a course, and I hope that the privilege may again be granted.

Dr. Philipson: I beg to move that the request of Dr. Adamson be complied with, and that the arrangement of the details be left in the hands of the Secretaries and Dr. Adamson.

Dr. Murphy: I have pleasure in seconding Dr. Philipson's motion.

The motion was unanimously adopted.

CHARCOT'S JOINT DISEASE.

Dr. MURPHY: It may be within the remembrance of the members of the Society that, some time ago, I showed a man here whom I described to be suffering from old-standing injury to the knee joint. To Dr. OLIVER I was indebted for pointing out that the case was not one of injury proper, but was a case of CHARCOT'S Joint Disease. In that case, the ataxic symptoms were so little marked as to have altogether escaped my notice. In this case, however, which I bring before you to-night, the state of matters is very different. This man has had symptoms of Locomotor Ataxia for nine years, but only about six months ago did he notice the joint disease. What was complained of, in the first place, was a swelling of the joint with difficulty of using it; and, when he first came under my care in the Sunderland Infirmary, there was considerable effusion into the joint. That improved under treatment, and for a time after he was discharged from hospital I lost sight of him. At the time he passed out of my hands there were no osteophytes, but, since then, the joint has become typical of the disease. There is now the well-marked flail-like movement, and there are considerable enlargements on the end of the femur and head of the tibia. I should like the opinion of some of the physicians upon the case.

Dr. DRUMMOND: We should be very much indebted to Dr. MURPHY for shewing us the case, but, for my own part, I should be even more indebted if Dr. Murphy would tell us why he calls this a case of CHARCOT'S Joint Disease. I admit freely that this man is suffering from tabes, and it is equally obvious that he has disease of the knee-joint. But why might we not say that this is a case of tabes, with chronic rheumatic arthritis, instead of calling it a case of CHARCOT'S disease?

Dr. MURPHY: I am very sorry, indeed, that Dr. DRUMMOND does not recognise a case of this kind when he sees it. The sudden onset of the disease in the joint, and the complete absence of pain in it from the beginning, distinguish it very clearly, in my mind, from a case of chronic rheumatic arthritis.

CICATRICIAL GROWTH.

Dr. HEATH: The subject from whom this drawing was taken was brought into the Newcastle-upon-Tyne Infirmary when four years of age, and remained under treatment at this Institution for four or five years, chiefly as an out-patient. Ultimately, she got well enough to earn her living as a domestic servant when old enough to go into service. Sometime ago she received a blow upon the old cicatrix on the arm, a sore appeared, this sloughed, and a large wound formed.

The first question that now arises is what is the nature of this ulceration? We know that scars do present various changes during the healing of a wound. Keloid, for instance, does this; but this is not keloid. We, again, sometimes see the warty growth, but in other cases, something worse than this takes place, as WHARTON has pointed out that the warty growth goes on to epithelioma. Now this growth seems to me to be something between these two. It does not appear to me, at present, to be an epithelioma, but it might well go on to that malignant character, because we must remember that it is a very old scar of over 20 years' duration, and there is a history of recent injury.

What line should be adopted in the treatment of this case? It is a very awkward form of growth. If it were a mere warty excrescence we might content ourselves with the application of stimulating lotions, or we might cut it out. But if it is an epithelioma we might be called upon to excise the elbow joint over which it is situated, or amputate the limb. Meantime, I am applying chloride of zinc, partly with a view of destroying the growth if possible.

Dr. ADAMSON: What age is the girl?

Dr. HEATH: Thirty years of age.

Dr. ADAMSON: This case reminds me strongly of one I had under my care sometime ago. This was a boy with a growth on the foot, having all the microscopical appearances of epithelioma. I removed that growth, but a second one appeared in the cicatrix, having exactly the appearances presented in the drawing exhibited.

Dr. HUME: If I mistake not, I must have seen this girl sometime in the interval, after she left the Hospital. If that is so then the scar must have enlarged very much since I saw her. At that time I prescribed weak alkaline lotions, which gave very considerable relief. I also proposed to her to have the joint excised to relieve the tension on the skin. I remember of having performed this on a boy in whose case it answered admirably. If this case of Dr. HEATH'S is the same one that I saw, I should suggest the treatment by excision.

Dr. HEATH: I have no doubt that this is the same case which Dr. HUME saw. As I said before, I don't think that we have at present to deal with an epithelioma here, but I think it very likely that it may go on to that. If removal of the skin and subsequent treatment by grafting do not succeed, I should recommend something more serious being done.

A CASE OF SPONTANEOUS RUPTURE OF THE HEART.

Dr. JAS. DRUMMOND: As spontaneous rupture of the heart is a rather rare cause of death, I venture to bring the present case

before the members of this Society. The man from whom this heart was taken, was 66 years of age at the time of death. Ten years previous to his last illness, he had an attack of cerebral apoplexy, followed by partial paralysis of one side. There was evidence of some grave cerebral lesion, as shown by irritable temper and other signs of mental disturbance. There were no other prominent signs of disease in any of the other organs, and no stethoscopic or other evidence of disease of the heart. While taking walking exercise on the day of his fatal illness, he was seized with sudden faintness, fell back, and died in a few minutes. It was thought that the fatal attack was due to another and more serious lesion in his brain, and, on obtaining permission to make a *post-mortem* examination, this was the first organ examined.

On opening the skull, it was found that the brain had undergone the process of softening to a great extent. The grey matter especially was deficient in quantity, and had become much softer than is found in a healthy brain. The amount of serus fluid in the ventricles, and surrounding the brain as a whole, was in great excess. No blood-clot, ruptured vessel, or other evidence of hæmorrhage could be found, so that the cause of the sudden death had to be sought for elsewhere. On opening the chest, it was observed that the pericardium was distended with fluid, and on an incision being made into it, a large quantity of serum and blood-clot was found. When this was removed, and the heart examined in situ, a rent, about an inch in length, was observed in the anterior wall of the left ventricle, near the apex. On removing the heart, it was found to be covered with a greater quantity of fat than is usual, and more spherical than conical in shape.

The aortic valves were found quite competent when tested, not allowing water to regurgitate into the ventricle under considerable pressure.

Regarding this case from a pathological point of view, the question of greatest interest is, what caused the heart-wall to give way? In a recent number of the *Lancet*, there appeared an account of the proceedings of the Society of German Practitioners, at which Dr. R. V. Limbeck gave a demonstration on this subject. Dr. Limbeck, following the view taken by Heule and others, pointed out that the usual course of events, in such cases, was as follows:—First, calcareous degeneration of the blood-vessels generally, this extending to the coronary arteries, which become blocked, cuts off the blood supply to part of the heart-wall, degeneration, softening and thinning of one of the ventricles, usually the left, gradually takes place, the ventricle bulges out, and, when some unusual strain is thrown on the heart, the weakened heart-wall ultimately gives way, and rapid death is the result.

The case I have brought before you corresponds somewhat to this description, but some of the most important factors are absent. In the present case there was no marked evidence of atheromatous disease in any of the arteries. There is only at one point in the aorta, which is still attached to the heart, a small calcareous plate to be felt, but as far as I have been able to dissect and examine the other arteries, there is no evidence of calcareous degeneration. After carefully examining the coronary arteries there is no trace of atheroma, or blocking by embolism or thrombosis. A probe can be passed for a considerable distance into those arteries from the aorta. There is no appearance of collapse or shrinking of the arteries, which would be noticed if any part of the vessel was obstructed. Neither is there any record of excitement, or strain on the blood-pressure.

The appearance which the specimen now presents, owing to its having been in spirit for some weeks, is very different to that which it presented when in the fresh state. The heart has shrunk much as a whole, and the muscular tissue is now firmer and harder throughout. The left ventricle has been opened so as to avoid the rupture, Near the apex, was found a very firm, partly organised clot, the remains of which is still to be seen. This blood-clot penetrates and is intimately incorporated with the muscular tissue, so that it is difficult to distinguish muscular tissue from blood-clot with the naked-eye. Close to the rupture, the entire thickness of the ventricle is soft and friable, and of a dark coffee colour. The microscopic sections, which have been taken from the seat of rupture, show that the muscular tissue has been broken up into bundles, being separated by granular masses which I take to be infiltrated and partly organised blood. The muscular tissue itself having undergone fatty degeneration to a considerable extent.

From the absence of any decided evidence of calcareous degeneration in the arteries, or any blocking of the coronary vessels, I do not think that the degeneration and weakening of the muscular tissue can be due to a local cutting off of the blood-supply. I am more inclined to think that, at this point, there may have been chronic endocarditis or myocarditis, perhaps dating as far back as the attack of cerebral apoplexy; softening of the endocardium would take place, admitting of penetration of blood into the muscular substance, and so forming a small internal aneurism of the heart. This ultimately rupturing into the pericardium would easily account for the sudden fatal result. I should be glad, however, to hear the opinion of the members of this Society on the case.

Dr. Oliver: Did this patient complain of very severe pains in the upper part of the abdomen? I believe that in cases of effusion into the pericardium the pain is nearly always referred to the

epigastrum and not to the percordial region. I think that, in this case, dissecting aneurism was a more probable cause of the result than plugging of the coronary artery.

Dr. D. Drummond: Why put down plugging of the coronary artery as a frequent cause of rupture of the heart? In my experience it is a most infrequent cause.

Dr. Gowans: I think there can be no kind of doubt that, in the case before us, the cause leading to the rupture was a dissecting aneurism. But, on the other hand, I cannot agree with Dr. Drummond, because I believe plugging of the coronary artery to be a not unfrequent cause of rupture. The artery becomes plugged, the muscular tissue becomes cut off from its blood supplies, or is inefficiently supplied, the cardiac muscle degenerates, and ultimately ruptures, when attenuated to that degree that it is incapable of expelling its contents.

Dr. Jas. Drummond: There was no pain complained of at all, and there were no physical signs on examination of the chest leading one to suspect heart disease. What was principally complained of was a difficulty of breathing, an almost constant suffocative feeling.

EQUINO VARUS.

Dr. Heath: You will probably ask me what I have brought these two old casts before you to-night for. Well, in view of a discussion which took place here at the last meeting of the Society, I think they are of some interest. The boy, aged 13 years, from whom the casts of the foot were taken, was a patient in this Infirmary, in 1857. He was sent to my house by Mr. Ingham, of Westoe, who informed me that the boy's friends were prepared to send him to the Orthopœdic Hospital, in London, but I advised them to delay that journey until local surgery had had a chance. From this cast you will see that the case was a severe one of equino varus, the greatest projection being that of the cuboid. I had this cast taken, and sent it up to Bigg, of London, to shew what deformity had to be reduced, and he made me a most excellent ratchet-shoe for the after-treatment of the case. Subcutaneously I divided the tibialis anticus, tibialis posticus, and the planter fascia; the deformity was forcibly reduced, and the foot placed in the ratchet-shoe, with the ultimate result which you see in this second cast. You may have some little difficulty in believing that these two casts are from the same foot, but you may take my word for it that they are. I showed them at the meeting of the British Medical Society, in 1870; and I have brought them under the observation of this Society now in order to prove that, in former days, long before osteotomy was mentioned in connection with this deformity, we got results highly satisfactory. It is the proper use of apparatus

after the operation that is the important matter in the treatment of club foot, and, where that is neglected, the results are certain to be bad.

MALIGNANT GROWTH OF ARM.

Dr. Heath: The case I now bring forward is one, from the history and other circumstances, of very considerable interest. The man first came to me about a year ago, with a growth freely moveable, and about the size of a hen's egg. on the elbow of his right arm. About 10 or 11 years ago, while helping a lady into a railway train, he strained his arm, and swelling shortly after appeared, which he likens to a varicose vein. This swelling remained, without much alteration, till about a year ago, when he got a scratch on the part, and then the lump began to enlarge very rapidly. At this time I was consulted, and advised removal, and the tumour which was taken away, was a soft mass, with large cavities containing soft material. About six months after this, the same gentleman came to me, this time with a growth over the same place, but this time not pedunculated, and it was under the skin. The patient was very unwilling to have the arm amputated, so I thought I might again remove the growth, and this, with the assistance of Dr. Lightfoot, I did. There was considerable difficulty in getting sufficient flap to cover the skin, but this we managed to procure ultimately. Three months' after this the growth again appeared, this time on a broader basis, and, seeing the impossibility of again removing the growth itself, I advised amputation. I proceeded to operate at the junction of the upper and middle thirds of the arm, and I made the flaps as for the flap amputation at the shoulder joint, so as to remove the whole of the bone, if that were found necessary.

Dr. Oliver: I have examined this growth microscopically, and find it to be a small round celled sarcoma, containing a large number of blood spaces, and I should, therefore, call it an angio sarcoma.

RUPTURED BLADDER.

Dr. Murphy: The history of the patient from whom this ruptured bladder was removed, was as follows:—On the 28th of December, he was admitted into the Sunderland Infirmary, complaining of inability to pass water. He stated that he had been under the care of a medical man, who had passed a catheter, drawing away, however, no water, but a considerable quantity of blood. In my absence, the case was received by my House Surgeon, who passed a catheter into the bladder, drawing away a large quantity of urine, and giving the patient great relief. The next morning the same thing was done, but the day after, the man turned suddenly sick, vomited, got into a condition of collapse, and shortly died. At no time since his admittance to the

Infirmary did he complain of any considerable pain, and the diagnosis of the cause leading to the sudden death, was, therefore, difficult to make. His friends say that the night before he came into the Infirmary, he came home drunk, and what might have happened to him while in that condition it is impossible to say. The case is interesting, as in two cases where he had been fortunate enough to diagnose the condition of ruptured bladder, Sir Wm. MacCormack cut down and sutured the injured viscus, with recovery in both cases. Erichson recommends, on the other hand, continuous drainage.

Mr. Page: I should like to ask Dr. Murphy how he accounts for the presence of four ounces of water in a ruptured bladder? I understand that was the quantity drawn off at the first catheterisation at the Infirmary.

Dr. Heath: Were there no symptoms referred to the lower part of the abdomen? I had a case some years ago of a boy who had his pelvis fractured. In this case, it was found post-mortem, that there was a new bladder formed under the peritoneum; but, during life, the physical examination of the hypogastric region gave a very different result from that of an ordinary case. The dulness was not sharply circumscribed, as was the case of the normal bladder moderately distended, but there was a dulness with limits certainly, but diffuse and with no distinct outline as we ordinarily find. This boy lived six weeks after his accident, and I do not think the rupture had much to do with the fatal termination, as the plastic lymph which had been poured out round about it, had made quite a thick sac which communicated with the bladder through the rupture, the water escaping quite readily per urethram. I think it possible that, in Dr. Murphy's case, the catheter may have passed into the bladder through the rupture, and the water drawn off came from the abdominal cavity.

Dr. Murphy: As the man was admitted in my absence, and as the water was drawn off before I saw him, I had no opportunity of helping the diagnosis by a physical examination. I repeat only that he came into the Infirmary without any history of injury, four ounces of bloody urine were drawn off, and the man expressed himself at once as being quite relieved.

GUN SHOT INJURY TO THE EYE.

Mr. Williamson: The patient from whom this eye was removed was out shooting with a friend. A bird rose between them when they were about sixty yards apart, the friend fired, and instantly the patient felt he was struck in the eye. He applied his handkerchief firmly over it, and walked a distance of five or six miles. I saw him with Dr. Farmer two days after the accident.

He complained of considerable pain, the eyelids were much swollen, and the eyeball protruded. The lids were separated with some difficulty, and a small wound was then made out at the sclero-corneal junction, into which there was a partial prolapse of the iris; an effusion of blood obscured all other details; there was no perception of light, and no great tenderness on pressure. Considering the small size of the shot, and the distance from which it was fired, it seemed probable that the force of the shot would not be sufficient to carry it through the eyeball; but, on the other hand, the great swelling of the eyelids, and the projection of the eyeball seemed to show that the shot had passed through the eye and wounded some vessels behind it. The eyeball was at once excised; it was found to be full of blood, but did not contain the shot. On examining the sclerotic, a small aperture was found near the optic nerve, which was bounded by three triangular flaps, the shape was so characteristic of an aperture of exit, that I have had this specimen prepared and mounted to show it. As the shot was not touched during the operation, it was not, of course, sought for in the orbit. It was clear, however, from the position of the wounds of ingress and egress that the pellet was well away from the region of the optic nerve. The patient did well after the operation, although his progress was a little slow at first on account of the swelling and hæmorrhage caused by the accident.

Dr. Murphy: I had a case sometime ago under my care, in which the patient was said to have a piece of steel in his eye. We removed the eye, and I found the steel in the bottom of the orbit. In regard to hæmorrhage in these cases, I generally content myself with placing a piece of lint compress over the eye.

Dr. Heath: For my part, I generally find that a piece of lint, soaked in cold water and placed over the eye, sufficient to check hæmorrhage in these operations.

CASE OF ENCYSTED PLEURISY.

Dr. Oliver: This lung was removed from the body of a man 57 years of age, who, for many years past, had followed the occupation of a night watchman. When admitted into the Infirmary, he was suffering from very urgent dyspnœa. On examination, the whole of the left chest in front was found to be dull on percussion, and no respiratory murmur nor cardiac sounds could be heard, nor any apex beat felt. As the symptoms were very urgent, Mr. Waldy at once performed paracentesis, inserting the needle slightly to the left of the nipple line, and drawing off about a pint of clear serum. Whilst the fluid was escaping, the heart could be felt beating against the end of the canula, and patient was noticed to turn very pale and faint. Mr. Waldy considered that the fluid had come from the pericardium. This

aspiration was followed by great relief to all his symptoms. When I saw him, the left chest was still dull on percussion in front, but the back of the chest gave a clear percussion note. Respiratory and cardiac sounds were still indistinct in front, but the former, accompanied by rales, could be heard behind. A few days after this, as dyspnœa had returned, aspiration was again performed, a large quantity of serum being removed, and evidently from the pleural cavity. It not only gave great relief to the breathing, but the apex beat of the heart could now be felt, and over the pericardium double aortic and mitral systolic murmurs were now heard. The diagnosis now was aortic and mitral regurgitation and pleurisy with effusion, but it was difficult to explain why, while the whole of the front of the chest was dull on percussion, and with absence of respiratory and cardiac sounds and apex beat, the back should be resonant. For several weeks after this, patient did remarkably well; urine contained neither albumen nor sugar. By degrees, however, the urine became scanty and albuminous, dyspnœa returned, and he gradually sank. At the *post-mortem*, the whole of the pleural cavity in front contained fluid which had driven the lung backward and compressed it. The pleural cavity was found to be divided off into three large spaces by means of dense ragged septa, the largest space being one which lay just to the left of the pericardium. The heart and pericardium were displaced backward and to the right, the heart being displaced on its long or vertical axis. It was evidently from this large space in front of the lung that the fluid came in the first aspiration, removal of which allowed the heart to regain somewhat its normal position so as to tilt leftwards against the canula, and gave rise, therefore, to the same symptoms as if the pericardium had been pierced. The case is an interesting one of encysted pleurisy; the cyst-like spaces being so distinctly marked off from each other that there was no intercommunication of their contents.

NEW CARDIAC TONIC STROPHANTHUS.

Dr. Oliver: Through the kindness of Mr. Martin, of the firm of Brady and Martin, Mosley Street, I am able to show to the members of this Society the pods and seeds of a new and very potent cardiac tonic, strophanthus hispidus. For its introduction to the notice of the profession we are indebted to Professor Frazer, of Edinburgh, who, at the Annual Meeting of the British Medical Association, at Cardiff, in a paper on the "action and uses of digitalis and its substitutes," made special reference to strophanthus. A native of Africa, the plant has long been employed there as an arrow poison. It produces a pod or follicle which, as you see, is from 9 to 12 inches in length, and when opened is found to contain from 100 to 200 oval seeds, with long, delicate, silken hairy appendages, which give to them an appearance

not unlike an arrow. It is from the powdered seeds that the arrow poison is made. They have an intensely bitter taste which lasts sometime in the mouth. As the plant is still very difficult to obtain, and is, therefore, very expensive, I shall be glad if the members will be careful not to waste the seeds. So far as the pharmacological action of the plant is concerned, one may speak of it as a muscle-poison. When introduced by any channel into the body it causes strong contraction of all striped muscular fibre, which is preternaturally prolonged, and if the dose has been large, and the animal dies, the contraction is permanent, the muscles passing into a state of rigour-mortis, without having ever gained their normal flaccidity. The heart is easily and quickly affected by it. It was, however, in dealing with the drug as a diuretic, that Professor FRAZER afterwards came to realize its value as a cardiac tonic. In small doses, he claims for it increased systole of the heart, and slower action. Large doses cause paralysis by throwing the heart into a condition of rigid systolic contraction. It raises the blood-pressure, and thus increases the flow of urine. My own experience, now considerable, for I have used the drug pretty constantly for the last 14 months, is confirmatory of Professor FRAZER'S opinion. Strophanthus raises the blood-pressure by acting upon the central organ of the circulation—the heart—and hence, in nearly all cases, where the circulation is imperfectly carried on through failure of this organ the drug may be employed. My best results have been obtained in mitral regurgitation, where the heart has been dilated, occasionally intermittent, and the pulse small. In some of these cases it has acted almost immediately, giving great relief to the breathing, and the good results have been fairly permanent. In a few cases of mitral stenosis it has acted well, and, in some of my cases of aortic regurgitation, I have been highly pleased with the results. If there is any cardiac condition in which its good effects are quickly seen it is in those in which intermittent action is present, no matter whether the cause is organic or functional, and where palpitation is more or less complained of by the patient. It must be given in small doses, however. Some of my patients, it is only right to say, have been unable to take the drug, owing to its extreme bitterness, while not a few have been obliged to give it up, as it caused pain in the stomach, vomiting, and diarrhœa. The ethereal tincture is the one mostly employed, and of this three to five minims is enough. I find that few patients can take more than the three minims. Lately, I have been investigating the therapeutical value of preparations made from the pericarp, the hairs and seeds of the plant, and while the tincture made from the pericarp gave no results worth mentioning, that from the hairs acted as a cardiac tonic, but was much feebler, and the effects were less lasting than when the tincture made from the seeds was employed. My experience leads me to speak very favourably of the drug.

ANNUAL REPORT OF CASES TREATED IN THE GYNÆCOLOGICAL DEPARTMENT OF THE NEWCASTLE-UPON-TYNE INFIRMARY, FOR THE YEAR ENDING DECEMBER, 1886.

By THOMAS OLIVER, M.D., M.R.C.P., Physician to the Infirmary, and Physician-in-Charge of the Department for Diseases of Women, Infirmary, Newcastle-upon-Tyne.

Of the 151 cases treated during 1886, in the Out-door Department for the treatment of diseases of women, displacements of the uterus occupy the most prominent position on the list; 22 cases of retroflexion and retroversion, and 9 of anteflexion, making 31 in all, while of prolapse of that organ 14 cases came under observation. Inflammation of the uterus, either of the body metritis and endometritis, or of its neck endocervicitis has supplied a large number of patients, viz., 20, while if we add to this 10 cases of inflammation of the pelvic peritoneum or of the tissues more immediately surrounding, and in contact with, the uterus (3) we have 33 cases in all; a large number, but not so large as that supplied by displacements. The 7 cases of menorrhagia, 6 of sub-involution, 5 of dysmenorrhœa, and 15 of amenorrhœa, call for no remark; 8 cases of cancer, most of them of the cervix, 1 of displaced right kidney, with a wide range of motion, and only presenting symptoms when pressed upon in its abnormal positions, 1 of hydrometra, and 5 of vaginitis, require no comment. To the 2 cases of hypertrophied cervix, 2 of extreme stenosis of the cervical canal, and 1 of so-called conical cervix, some interest attaches from the relief, if not in most cases the absolute cure, which followed operative treatment, carried out at my suggestion by our ever enthusiastic and skilful House Physician, Mr. Waldy. Amputation of the cervix resorted to in the cases of extremely hypertrophied cervix has been most successful. Of 5 cases of prolapse of the ovary, 1 forms the basis of some of my remarks later on. Most of them experienced great pain, not always relieved by the pessaries they were wearing when they came for advice. Where prolapse of the ovary exists, be it enlarged or tender, and, therefore, the seat of congestion and œdema, there is frequently associated with it some degree of displacement of the uterus; the most frequent displacement, in my opinion, being retroflexion. And it is just in these cases that, while the uterine displacement is easy of diagnosis, that of the ovary, which accompanies it, may escape detection, and, therefore, any pessary which is inserted simply to relieve the uterine displacement, too often presses upon the tender, heavy ovary, and causes very great suffering. In such cases, I have found Thomas' retroflexion pessary, with its broad base and doubly bended limbs, of very great service.

ABSENCE OF OVARIES, UTERUS, AND VAGINA.

The following are two of the most interesting cases which came under my observation:—E. F., æt 21, a pale, and rather undersized young woman, was brought to me complaining of pain in the hypogastric and lumbar regions, and stated that she had never menstruated. She had a good family and personal history. At the age of 16, as her menses had not appeared, various medicines were given and advice sought. She was the subject of obstinate constipation. On examination, I found lungs and heart healthy, breasts not developed, tonsils absent, and, on searching for a vagina, only one small opening could be seen, that of the meatus urinarius. I took the patient into the House, and, under chloroform, made a complete examination. The opening already referred to led only into the bladder. For a small distance below and around it, there was mucus membrane of a rough, granular character; no vagina could be found. I passed my finger into the bladder, but failed to feel anything but wall of bladder. Another finger I passed into the rectum, which came at once into very close and immediate contact with that in the bladder, nothing separating them but the wall of bladder on the one hand and that of rectum on the other. As far as I could reach with my fingers, no trace of ovary could be felt. We had here an interesting case of complete amenorrhœa to deal with, associated with complete absence of ovaries, uterus, and vagina. The patient, on interrogation, stated that she had never experienced any sexual desire.

HERNIA OF OVARY.

The other case is that of a girl, æt 16, a general servant, who was brought to me a few weeks ago, complaining of pain and swelling in her right groin. About 10 days before I saw her, she had lifted a heavy pan, and, whilst doing so, she felt something crack in the lower part of the abdomen, which was followed by a feeling of sickness. She did not vomit, however. The bowels had been opened that day. On examination, I found a tender, roundish swelling in the neighbourhood of right Poupart's ligament, which was easily reducible. Three days after this, as the swelling had reappeared, she again sought my advice, particularly as the reappearance of the swelling had given rise to a good deal of vomiting, and walking was now a matter of very great pain to her. She told me that she suffered the greatest pain when she lay on her left side, less when she lay on her right side, but least of all when lying on her back. The swelling, which was about the size of a small walnut, lay immediately under right Poupart's ligament; it was soft, elastic, of firm consistence, and did not give altogether the feeling of intestine. It was easily reduced in the first instance, but, on *handling the swelling, one was struck by the sense of pain, accompanied by a feeling of sickness, extreme*

pallor of the countenance, and a tendency to faintness. No impulse was detected in the swelling on coughing, nor was the swelling extremely tense, nor in its reduction was there felt anything like a gurgle or a slip. It was now considered to be a hernia of the ovary. I sent her upstairs to the female ward, and two days after this, the swelling was again present. On this occasion, there was distinct impulse on coughing, and, in its reduction, a distinct gurgle could be felt. She should have menstruated at this time, but did not do so. Patient was chloroformed, and a full examination made. Per vaginam the "os" felt a little rough, but was otherwise normal; uterus freely moveable and quite healthy. To the right of the uterus could be felt a freely moveable, round body, about the size of a walnut. It generally lay to the right of, and slightly behind, the womb, but it could be easily displaced to the front, and could be pushed upwards by the finger. A coil-like structure could be felt external to it, but whether it was a distended Fallopian tube or intestine, it was impossible to say. I was inclined to regard it as small intestine. On the left side the ovary was about quarter of the size of that on the right, and its Fallopian tube could be felt about the thickness of a quill. We had here a case of crural hernia of the right ovary to deal with, rather an unfrequent occurrence. On one occasion, a small piece of intestine had evidently descended the canal in conjunction with the ovary. *The diagnostic signs of ovarian hernia which we relied upon were the dragging and pain felt by the patient when she lay on the side opposite the tumour, pain on movement of the limbs, pain of a sickening character on handling the swelling, pallor of the countenance and tendency to faintness, the consistence of the swelling and in its reduction absence of slip and gurgle.* We had a truss made for the patient, and, since wearing this, displacement of the right ovary, still in all probability enlarged and prolapsed, has ceased to trouble her.

RESULTS OF MAJOR AMPUTATIONS TREATED ANTISEPTICALLY IN THE NEWCASTLE-UPON-TYNE INFIRMARY, DURING THE YEAR 1886, &c.

By FREDERICK PAGE, Honorary Surgeon to the Newcastle Infirmary, and additional Examiner on Clinical Surgery in the University of Edinburgh.

Mr. President and Gentlemen,

It is once again my privilege to direct your attention to the results of amputations performed in the Newcastle-upon-Tyne Infirmary. During the year 1886, amputation was resorted to on 66 occasions, and four patients died. The number of deaths is greater than in any of the three preceding years, and the percentage of deaths 6·0, is slightly in excess of two of those years. In 1885, the percentage of deaths was 3·9; in 1884, 5·2; and in 1883, 6·2. The number of amputations is the largest of the period. In 1885, there were 51; in 1884, 57; and in 1883, 48 major amputations. But, though the number of amputations and the mortality were both comparatively high last year, I do not think any connection can be traced between the percentage of deaths and the number of amputations treated. If that were so, then in the year of fewest amputations the mortality ought to be least; but such is not the case, for, in 1883, with 48 amputations (the smallest number in any of the four years), there were three deaths, 6·2 %, the highest mortality of the period.

Table of Major Amputations treated antiseptically in the Newcastle-upon-Tyne Infirmary, during the year 1886.

	FOR INJURY.			FOR DISEASE.			TOTAL.
	No.	Recov.	Died.	No.	Recov.	Died.	
Hip Joint	0	0	0	3	2	1	3
Thigh	1	1	0	16	15	1	17
Knee Joint	0	0	0	0	0	0	0
Leg	10	10	0	5	3	2	15
Ankle Joint	5	5	0	13	13	0	18
Shoulder Joint	0	0	0	0	0	0	0
Arm	3	3	0	3	3	0	6
Forearm	3	3	0	1	1	0	4
Wrist Joint.....	3	3	0	0	0	0	3
	25	25	0	41	37	4	66

Precise cause of death.

I.—Young woman. Morbus coxœ of two years' standing, hip excised 12 months before; amputation at hip, death in eight hours from shock. Patient had Albuminuria

II.—Man aged 46. Phthisis and suppurative disease of knee-joint; thigh amputated; died of Phthisis 7 weeks 4 days after operation.

III.—Man aged 62. Amputation of leg at seat of election for old ulcer; died from septicœmia 8 weeks 3 days after. Had ulcer on other leg.

IV.—Man aged 55. Spontaneous gangrene of foot; leg amputated at seat of election; died from recurrence of disease 2 weeks after.

Of the 66 amputations, as will be seen from the above table, 25 were for injury, and no patient died; 41 were for disease, and four died, 9·6 %. The precise cause of death is given above in each instance. The only circumstance I wish to note here is the relative mortality after amputation for injury and for disease. The mortality after amputation for disease is much higher than after amputation for injury. Adding the amputations during 1886 to those performed in 1885, 4 and 3, we have a grand total of 222, with 12 deaths, 5·4 %.

Table of Major Amputations treated antiseptically in the Newcastle-upon-Tyne Infirmary, from January 1st, 1883, to December 31st, 1886, a period of four years.

	FOR INJURY.			FOR DISEASE.			TOTAL.
	No.	Recov.	Died.	No.	Recov.	Died.	
Hip Joint	0	0	0	9	6	3	9
Thigh	10	9	1	54	51	3	64
Knee Joint	4	4	0	1	1	0	5
Leg	21	21	0	26	24	2	47
Ankle Joint	12	12	0	30	29	1	42
Shoulder Joint	2	2	0	3	3	0	5
Arm	14	14	0	6	5	1	20
Forearm	13	12	1	10	10	0	23
Wrist Joint.....	7	7	0	0	0	0	7
	83	81	2	139	129	10	222

Eighty-three of these amputations were for injury, and two patients died, 2·4 %; one hundred and thirty-nine were for disease, with 10 deaths, 7·1 %; thus maintaining throughout the whole period the higher mortality from disease than from injury observed during the past year. Two deaths only have occurred after a traumatic amputation during the four years, and this is a most remarkable circumstance.

In the year 1883, there were 23 amputations for injury without a death; in 1884, 21, with two deaths; in 1885, 14, without a a death; in 1886, 25, without a death. So that, during a period of four years, the hospital annual reports have only once recorded any death from a primary amputation. I question whether, in the history of our Infirmary, a period of four consecutive years can be found to yield such a result.

But let me draw your attention to the precise cause of these two deaths. The first arose from shock and loss of blood, and occurred a few hours after amputation of the thigh, the only death after primary amputation of the thigh during four consecutive years, and there have been 10 primary amputations of the thigh treated during the period. The second arose from traumatic tetanus, from which the man was suffering on admission, and for

which his arm was removed in the hope, but, unfortunately, in the vain hope, of staying the fatal progress of a terrible malady. It will be observed that no death from pyœmia, or any other form of blood-poisoning, has arisen during the four years after a primary amputation, a most satisfactory result.

Ten deaths have followed amputation for disease. In the year 1883, there were 25 amputations for disease, with three deaths; in 1884, 36, with one death; in 1885, 37, with two deaths; in 1886, 41, with four deaths. Thus, as has already been shown, during a period of four consecutive years, we have had 139 major amputations for disease, with 10 deaths, 7·1 %, a considerably higher mortality than has accompanied the amputations for injury. This is contrary to past experience.

In the year 1883, I published the following table, giving the results of major amputations performed in the Newcastle Infirmary, from April 1st, 1878, to December 31st, 1882, a period of four years and nine months :—

	FOR INJURY.			FOR DISEASE.			TOTAL.
	No.	Recov.	Died.	No.	Recov.	Died.	
Hip Joint	0	0	0	2	0	2	2
Thigh	16	11	5	37	34	3	53
Knee Joint	3	2	1	4	4	0	7
Leg	20	16	4	24	24	0	44
Ankle Joint	4	4	0	16	16	0	20
Shoulder Joint	3	3	0	2	2	0	5
Arm	11	9	2	6	6	0	17
Forearm.....	8	8	0	4	4	0	12
Wrist-Joint.....	0	0	0	0	0	0	0
	65	53	12	95	90	5	160

The number of amputations was 160, with 17 deaths, a mortality of 10·6 %, nearly double the mortality of the succeeding four years. I regret that I am unable to give the precise cause of the 17 deaths in this table. The number of amputations for injury was 65, with 12 deaths, 18·4 %, nearly nine times as great as during the following period. For disease, 95, with five deaths,

5·2 %; as against 7·1 % during the following period. What is the explanation of the mortality after amputation for injury falling from 18·4 % to 2·4 %, while that for disease has risen from 5·2 % to 7·1 %? I believe it to be a direct consequence of the greater success which now undoubtedly attends surgical operations generally. The chief cause of death after surgical operation, and particularly after primary amputation, used to be blood-poisoning of some kind, but, now, such a cause of death is rare. I think, too, more caution is exercised in treating cases of severe injury than was the case some 15 years ago. For instance, I have seen a man suffering from compound fracture of both thighs subjected to amputation at the hip, and at the middle third of the thigh, simultaneously, with the result of death on the table. I do not believe such a thing would be done now, and I do not think it would be justifiable; indeed, I would go further, and say, no patient ought to die on the table from a primary amputation. While blood-poisoning was a common result of surgical interference, surgeons were unwilling to amputate the limb of a patient showing signs of visceral disease. There was a more rigid selection of cases than is now the case. The presence of Albuminuria, or of Phthisis, led to the rejection of the case as one unfit for amputation. Hence, the mortality following amputation for disease was so much lower than amputation for injury, where it was and still is not possible to make any such selection, the operation being always one of necessity and not of expediency, as is sometimes the case in disease. Amputations are now more frequently performed upon patients suffering from visceral disease, with the hope of delaying, or even of putting a stop to its progress, and often the result justifies the anticipation. Occasionally, no doubt, the surgeon is disappointed; but, still, even a small percentage of recoveries justifies his action. It is impossible that the relative mortality after amputation for disease should not, under such altered circumstances, rise.

In dealing with the precise cause of the 10 deaths following amputation for disease, from January 1st, 1883, to December 31st, 1886, the circumstance that grave conditions of the system have not precluded operation will be apparent. Three of the 10 deaths followed amputation at the hip-joint.

No 1 patient was a female, aged 21. Twelve months before, the head of the femur had been excised. She was much reduced by suppuration, and had albumen in her urine. Death followed the amputation within 12 hours. No. 2 was a man, aged 50, also much reduced by prolonged suppuration and pain. He survived only a few days. No. 3 was a man, aged 30, in much the same condition as No. 2. He died in a few days—both from sheer exhaustion.

Three deaths followed amputation of the thigh. No 1, a man, aged 53 years, whose thigh had been amputated through the middle third for spontaneous gangrene of the foot and leg Gangrene recurred, and he sank 48 days after the amputation. No. 2, a man, aged 62 years, whose thigh was amputated close to the hip joint for long standing necrosis of the femur. He survived a week, and died of exhaustion without any sign of blood-poisoning. No. 3, a man, aged 46. He was admitted, suffering from Phthisis and suppurative disease of the knee joint. The limb was amputated, but the progress of the chest disease was not arrested, and he died in 7 weeks 4 days from Phthisis.

Two deaths followed amputation of the leg at the seat of election. No. 1, a man. aged 55 years, from recurring gangrene, his limb having been removed for spontaneous gangrene. No. 2, a man, aged 62 years, from septicœmia, the only death from any kind of blood-poisoning following amputation during the four years. This patient was admitted for the purpose of having his leg amputated. He was in a debilitated condition, having suffered from ulcers on both legs for 12 years. The left limb was removed, and, at the time of septic symptoms showing themselves, the wound was nearly healed. He died 8 weeks 3 days after operation, and I think it not improbable, infection arose from the ulcer on the right leg, rather than from the operation wound.

One death followed amputation at the ankle joint. The patient was an old man, just recovered from an attack of typhus fever. He was suffering, on admission, from spontaneous gangrene of both feet. One was amputated, but he never thoroughly rallied from the operation.

One death followed amputation of the upper arm. The patient was a woman, aged 77 years, admitted from a workhouse, in a very feeble condition, from suppurative disease of the elbow joint and from bed sores. There was not the slightest attempt at repair, and she died a few days after operation from sheer inanition.

I am not sure that, even 15 years ago, any of these ten cases would have been operated upon. The three cases of spontaneous gangrene would hardly have been touched, and yet, at the present day, Mr. J. Hutchinson and other Surgeons, advocate the practice. I have successfully amputated the thigh of a man, 60 years of age, through the middle third, for spontaneous moist gangrene of the foot and leg, in the Newcastle Infirmary, within the last five years. Amputation at the hip for disorganization of the joint in the adult is a very fatal operation, and three of the 10 deaths followed from that most desperate procedure. Nevertheless, my colleague, Dr. Hume, has performed the operation successfully in the

Infirmary, within the last few years. The man who died from phthisis, after amputation of the thigh for suppurative disease of the knee joint, was my patient, and I do not regret the operation, for I am satisfied I have seen the progress of lung disease arrested by the removal of a painful and diseased joint. The only preventible death was that of the man, aged 62 years, who died from septicœmia, after amputation of the leg, and for this death I am sorry that I cannot urge any satisfactory explanation. The case was mine, and I do not think it ought to have ended fatally. It was the only death from blood-poisoning during the four years, and what better indication can we have of the change which has come over hospital practice, than the complaint of a Surgeon, that out of 222 major amputations performed in a large, general Infirmary, one death has occurred from blood-poisoning.

I cannot conclude this paper without making a comparison. In Mr. ERICHSEN's last edition of his standard work on the principles and practice of surgery, published 1884, a table is given containing the results of 307 consecutive amputations performed in the University College Hospital, London, up to May, 1871. "79 patients died, yielding, as nearly as possible, a mortality of 25 %."

This is the table, and it will be observed amputations at the hip and wrist are not included :—

SEAT.	FOR INJURY.			FOR DISEASE.		
	Cases.	Deaths.	Per Cent	Cases.	Deaths.	Per Cent.
Thigh	39	23	59·0	86	18	20·9
Leg and Foot	44	14	31·8	74	10	13·5
Shoulder and Arm.....	12	5	41·6	24	8	33·3
Forearm	8	0	0	20	1	5·0
	103	42	40·7	204	37	18·1

Compare it with the following table which gives the results of 382 consecutive amputations in the Newcastle-upon-Tyne Infirmary, up to December 31st, 1886, including 11 amputations at the hip and 7 at the wrist, the mortality being 7·5 %, as against 25 at the University College Hospital, London. Excluding the hip and wrist amputations, the mortality is reduced to 6·5.

Table of Major Amputations treated antiseptically in the Newcastle-upon-Tyne Infirmary, from April 1st, 1878, to December 31st, 1886.

	FOR INJURY.			FOR DISEASE.			TOTAL.
	No.	R.	D.	No.	R.	D.	
Hip Joint	0	0	0	11	6	5	11
Thigh	26	20	6	91	85	6	117
Knee Joint	7	6	1	5	5	0	12
Leg	41	37	4	50	48	2	91
Ankle Joint	16	16	0	46	45	1	62
Shoulder Joint	5	5	0	5	5	0	10
Arm	25	23	2	12	11	1	37
Forearm	21	20	1	14	14	0	35
Wrist	7	7	0	0	0	0	7
	148	134	14	234	219	15	382

Mortality 7·5 %.

ON PARALYSIS FROM PERIPHERAL NEURITIS.

(Continued from page 82.)

By DAVID DRUMMOND, M.D., Physician and Pathologist to Newcastle Infirmary.

We have seen that the effect of alcohol upon the nerve trunks is almost uniform, the legs being first and most affected, and the arms later and to a less extent. In the group of cases that will next occupy our attention the neuritis is frequently of wider distribution, and may attack the cranial nerves in the course of its development. It is essentially a poly-neuritis, and, pending the discovery of its true pathology, for at present we know little or nothing of the etiology of the disease, it may be named progressive multiple neuritis, though, to some cases, the term *universal* might be aptly applied.

The following case, which I saw with our President and Dr. Blacklock, is a good example of the universal form of neuritis:—O. G., age 25, first complained of feeling ill on the 13th February, 1884. He had been in a draught, in church, a day or two before, and ascribed his illness to catching cold. His attack began with loss of appetite and a feeling of constriction across the chest. In a short time this feeling amounted to pain and descended to the stomach. Then vomiting set in, and the pain went round to the back, where it remained for the next few days. With the back-ache the sensation of tingling, like needles and pins, in the legs and arms was felt, especially the former, which rapidly became powerless. By the 21st (February), eight days after the commencement of the symptoms, he was so far paralysed that he was obliged to remain in bed. After this the paralysis rapidly spread upwards and affected the arms, especially the left, so that by the 25th of the month both arms and legs were nearly helpless. My connection with the case dates from about this period. The legs were flaccid and almost completely paralysed, and the feet were extended at the ankles. There was little or no diminution in the bulk of the muscles, which were tender on pressure. Sensibility was impaired in patches, but here and there areas of hyperæsthesia were detected. The plantar reflex and knee-jerk were absent. The arms were similarly affected, though to a less extent, as considerable grasping power still remained, especially on the right side, nor was control entirely lost over the flexors of the forearms. Thus, in both upper and lower extremities, the extensors were first affected. The back-ache continued, more or less, and the feeling of constriction round the chest, which had subsided, once more was complained of, giving rise to a difficulty in breathing. He now called our attention to a strange subjective sensation which he felt all over the body, but especially in the chest, abdomen, and legs—the feeling that the skin had become

hard, leathery, and insensitive. The tongue was coated, and the appetite bad. The temperature and pulse were practically normal. About three weeks after the commencement of the illness, marked constipation set in, and enemata had to be used, and he lost power over the bladder, which had to be evacuated by means of the catheter. The paralysis of the arms and legs increased, and before long it was apparent that the muscles were undergoing rapid atrophy. On the 6th of March, he began to complain of pain in the feet and legs, especially the right. This increased, and in a day or two, became most intense, and indeed continued so, more or less, up to the end of the sixth week of the illness. The pain was almost constant, and was of a sore, aching character, the feet being exquisitely sensitive to touch. The only remedy that relieved the pain and soreness was morphia, which we administered hypodermically; this afforded great relief, and enabled the patient to sleep, for the pains were so severe as often to keep him awake. Towards the end of March, about the seventh week of the illness, the facial muscles became affected, and, in a short while, double facial paralysis developed, the muscles supplied by the upper divisions of the portio dura being implicated in the process. It was also observed that his speech was thick, and that swallowing was interfered with. An examination of the mouth showed paralysis of the left side of the palate, which hung flaccid during a deep inspiration. The arms and legs were now markedly paralysed and wasted, the facial muscles were motionless, respiration was interfered with, and the catheter had still to be employed. This marked degree of paralysis did not last long, for shortly after the appearance of the facial paralysis an improvement became apparent in the arms and, a little later, in the legs. Notwithstanding this partial return of motion in the legs they gradually became drawn up, and once more the paralysis appeared to increase; they then remained *in statu quo*—drawn up and paralysed—until the end of June, when they gradually lost the stiffness, and power began to return. During the last few weeks of this period, a marked improvement took place in our patient's general health. He could eat well, could sit up, recovered slowly the use of the arms, and the facial paralysis disappeared. The lower extremities recovered very slowly, and long after he was able to drive about in a spinal carriage, the legs remained more or less useless.

Early in the case, the paralysed muscles were tested electrically, and the reaction of degeneration was apparent.

About August, 1885, 18 months from the commencement of the attack, he abandoned crutches for two sticks, and when last I heard of him (January 27th, 1886) he was able to walk about without any support, almost as well as ever, but when he attempted to run, he felt that he was in danger of falling. He

wrote me at that time, for he left Newcastle for the country as soon as he was able to be moved, and stated that "the toe-joints were still a little stiff, and the sinews of the ankles appeared to be drawn rather tight, and the feet were more sensitive than natural." I may add that no history of syphilis could be obtained, and that the patient was practically a total abstainer, so that alcohol could not be held responsible for the paralysis.

The following case is interesting as showing that multiple neuritis may, at least for a time, have a hemiplegic distribution. The patient, whom I saw with Dr. WATSON, of Newcastle, was 35 years of age. His illness dates from June, 1882, when he complained of the feeling of weakness, which affected the whole body more or less, but especially the left side—arm, leg, and face, the fingers of the left hand becoming somewhat rigid and flexed: but notwithstanding the hemiplegia, he could always walk about. During this attack, which lasted three months, he was pale, and felt very weak. In September, 1883, a few weeks before his marriage, the paralytic symptoms threatened to return. This time they began with diminished control over the sphincter of the rectum, and then the left foot became weak and unmanageable, "it flopped down in a clumsy way when he walked." Then the left side of the face became paralysed, and soon the muscles of the right side of the face began to twitch. From this the weakness extended and affected both arms and legs, though the onset was very gradual, for it was not until the beginning of March, 1884, that the paralysis had developed to such an extent as to confine him to bed. He was now unable to write, as his fingers could not grasp the pen. The auditory nerves became affected, and by the end of April he was "stone deaf." Taste on the left side of the tongue was lost, and double vision (distinct squint), double facial paralysis, difficulty of swallowing, all developed. On the 22nd of April, 1884, when the attack was at its height, the following condition was noted: arms and legs paralysed and wasted, the feet extended at the ankles, deafness, squint, paralysis of the left side of face and partial of the right side, unable to protrude the tongue, speech very thick, loss of taste (left side), unable to empty the bladder—the urine dripping away when the viscus became full, rectal sphincter relaxed, threatened with a bed-sore. I must add that he experienced no pain, and that "reflex action" was marked in the legs.* By degrees the various paralyses improved; the cranial nerve lesions disappeared soonest, and then the weakness of the arms passed off, leaving a degree of impairment of the legs and sphincters, for which I was asked to see him.

* I did not see the patient at this time, nor was he under the care of Dr. WATSON until later, so that we could not procure precise details as to sensibility, reflex action, etc., but the patient, who was a gentleman of great intelligence, gave his history with striking clearness.

He could walk about, though with obvious difficulty, the left leg being dragged more than the right. The muscles were flabby and somewhat wasted, and showed a decidedly diminished electrical excitability (quantitive loss), especially those of the anterior tibial region. The knee-jerk was increased on both sides, though particularly active on the right, but the plantar reflex was absent. Sensibility was almost restored. Under the influence of massage and electrical treatment, this patient has steadily, though slowly, improved.

The points of interest in this case are the tendency of the paralysis, at first, to limit itself to one side (hemiplegic), and secondly, the peculiar behaviour of the reflexes, which were increased, instead of diminished or lost. Then it is interesting to note the extent to which the cranial nerves suffered—there was deafness, loss of taste, squint, and facial paralysis. There was no history of syphilis or alcoholic excess.

In the case I am about to relate, the hemiplegic distribution was also, to a great extent, preserved, and the afferent nerves appeared to suffer more than the motor. The patient, a medical man, consulted me for numbness of the left hand, and I give the history of his case in his own words, which are accurately descriptive of his attack:—"On Thursday, June 23rd, I first noticed a tingling between the outer side of the ring, and the inner side of middle finger of the left hand, as if some pure carbolic acid had been spilt upon them. This continued, but I thought little of it until the Saturday, when the feeling of numbness extended over the whole hand and up to the forearm. On Sunday, my left foot tingled in the same way. The next day, as it had extended to my leg, I consulted Dr. DRUMMOND, and on examination, he found the sense of touch normal, with the exception of a circular patch on the dorsal surface of the hand, near the knuckles, which was anæsthetic; motor power and co-ordination were pretty fair. On Tuesday, I was able to drive, but the tingling now affected the whole side, including the neck, but not the face. I may say here that previous to the above symptoms, I had been subject, for some time, to startings at night just as I was on the point of going to sleep; I now observed that these startings increased. On Saturday, July 2nd, my left wrist became painful if not supported by the other hand. Now the power of co-ordination rapidly left me. At the beginning of the next week, when I was again examined, the sense of touch was found to be much impaired, for I could not tell that anyone was touching my hand, even when my fingers were tightly squeezed, and if I lost sight of my hand I could not find it again until I saw it. Above the wrist sensation was pretty good. During the week, I lost all control over the hand, the extensor muscles being chiefly affected, causing the hand to drop, and the fingers to assume the claw-shape. At no time was

there complete loss of motor power, only the muscles were weak, so that though I could extend the hand at will I could not sustain it for more than a very short period. There was also complete loss of co-ordination. My speech was slightly affected about this time as regards words of three or more syllables, that is, I could not be certain of pronouncing them correctly without two or three attempts, and then they were clipped, but that soon passed off. I also had a pain (or more of a constriction) across the abdomen, on a level with the umbilicus after meals and immediately before passing a motion. Friday in the same week (July 8th) I went to bed, where I remained for three weeks. During the first week, the tingling of the neck and side of body disappeared, but the other symptoms remained much the same. The sensations of my hand were very eccentric. Often I imagined it to be in one place when it was really in another. During the second week, I lost all the tingling of the leg and foot, but had it sometimes on the right hand and foot. The left hand and arm now improved, and I rapidly acquired control over its movements. By the end of the third week, my wrist was still painful if not supported, but the sense of touch was improved. I could now describe pretty accurately where my fingers were touched, but not so well on the back of the hand. I had very slight power of grasping, being unable to hold a fork at meals, or dress myself with that hand for sometime after. On first attempting to walk again, I was rather unsteady in my gait, and could not go more than a hundred yards at first without feeling severe fatigue, and a pain at the back of the knee, chiefly over the ext. popliteal nerve, but it passed off with rest. The tingling had left the arm and forearm, and seemed to be worse over the distribution of the ulnar nerve in the hand, the same occurring on the right hand, but not so bad. From that time I have gone on steadily improving, and now I can walk three or four miles without a rest. The tingling still affects the palmar surface of the left hand and fingers, and, after much exertion, or use of the right hand, I can always feel it in its palmar surface as well, and sometimes on the soles of both feet."

At this stage, I again had an opportunity of examining the patient. I found comparatively little evidence of the paralysis of the extensors of the left hand, though the muscles reacted very feebly to the interrupted current, and there was still some wasting.

The inco-ordination of the left arm during the height of the attack was very striking, and evidently pointed to an extensive lesion of the afferent muscle nerve fibres. Here, again, I was at a loss to account for the neuritis, as lead, alcohol, syphilis, gout, and rheumatism, had obviously nothing to do with the condition.

In some cases of multiple neuritis, gross inco-ordination and ataxy, more pronounced even than is met with, as a rule, in

cerebellar disease or tabes dorsalis, is the most striking feature. In the last case referred to, the ataxy of the left arm was complete, but in the case of the patient, whose history I am about to record, the lower extremities were chiefly affected. This case is interesting from many points of view, but I adduce it more especially with the object of showing that peripheral ataxia is not invariably due to alcoholic poisoning, an impression that is certainly conveyed in a comparatively recent utterance of Professor CHARCOT.* The patient, whom I saw with Dr. PARK, of Houghton-le-Spring, was a young married lady. For upwards of two months before she came under my notice, she complained of numbness in both hands, commencing in the left, and latterly affecting the lower extremities as well. This sensation in the feet and legs rapidly developed into a want of confidence in walking, and loss of control over the muscular movements, so much so, that her friends detected her in staggering from time to time. She stated that going up and down stairs was the most difficult action. She frequently fell when walking, and, of late, observed that she was unable to use her fingers in buttoning her gloves, tying strings, etc.; but she experienced most difficulty in lifting a cup to the lips, as the contents were spilt unless she watched the movements of the arm closely. There was no complaint of pain in the back or limbs, and, with the exception of the motor difficulties, she considered that she was in good health.

I found her robust in appearance, and exceedingly intelligent. When she attempted to walk across the room she staggered, and kept her eyes fixed on the floor after the manner of an ataxia patient. It was also apparent that, in walking, she scraped the toes of the left foot as she brought the leg forward. There was no wasting or definite paralysis of the muscles of the lower extremities, though she had some difficulty in flexing the left foot at the ankle; nor was there any anæsthesia of the legs or impairment of the electrical excitability. The knee-jerk was absent on both sides, but strange to say, slight ankle-clonus could be elicited, and the plantar reflex was increased. In the upper extremities, I found the grasping power diminished, especially of the left hand, and, on both sides, loss of power of the extensors. The left hypothenar muscles were somewhat wasted, and an attempt to extend the fingers fully gave the hand the claw-like appearance, so characteristic of ulnar paralysis. In addition, there was some anæsthesia of the hand in the region of the distribution of the ulnar nerve.

A month later, I again had an opportunity of examining the patient. The general health remained good, indeed seven pounds weight were acquired during the month. She stated that during

* *British Medical Journal*, January 1, 1887.

the first fortnight, an improvement was manifest in the paralytic condition, but subsequently, the difficulty in walking increased. An examination revealed the fact that she was decidedly worse. In attempting to walk, the left foot was scraped along the floor, and it was apparent that she had a great difficulty in flexing the foot, leg, and thigh. There was no wasting, unless it were of the anterior tibial muscles, which were weak and flabby on both sides. *The knee-jerk and ankle-clonus of both legs were very pronounced. The plantar reflex was absent.* Locomotion was shaky and uncertain, owing to a great tendency to staggering. She was unable to stand with the feet wide apart when the eyes were closed. On carefully testing the strength of the muscles of the legs, the flexors of ankle, knee, and thigh, were found to be weak on both sides, but the power of extension remained good. A small area of anæsthesia, the only impairment of the sort, was detected on the inside of the calf of the right leg, about four inches below the knee. The extensor paralysis of the hands and wrists was more apparent than before, and the thenar and hypothenar eminences were wasted. Tested with the faradaic current the wasted muscles showed a decided quantitive loss. The anæsthesia was also increased and now affected the region of the median, as well as that of the ulnar of both hands.

(To be continued.)

NORTHUMBERLAND AND DURHAM MEDICAL SOCIETY.

SESSION 1886-7.

FEBRUARY MEETING.

The Fifth Monthly Meeting of the Session was held in the Library of the Newcastle-upon-Tyne Infirmary, on the evening of Thursday, February 10th, Dr. Hume, President, in the Chair.

NEW MEMBERS PROPOSED.

The following gentlemen were proposed for election as members of the Society :—

John T. Hutchinson, L.R.C.P. (Edin.), Easington.
Briton Smallman Robson, M.B., C.M. (Edin.), Newcastle-upon-Tyne.

CASE OF KNOCK-KNEE.

Mr. Page: This man, Sir, who is 19 years of age, was admitted into the Infirmary, under my care, a few months ago, suffering from a severe form of knock-knee on the right side. The accompanying photograph gives a very good idea of the extent of the deformity. McEwen's operation was performed, and the wound healed readily and at once, without any constitutional disturbance. The result is, I think, very good. I consider the age of the patient a particularly favourable one for a good result, and I believe McEwen's operation to be by far the best devised for the cure of knock-knee. I understand that, at Guy's Hospital, Ogston's operation is still performed, if not preferred, in these cases. In Newcastle, Ogston's operation is now, I think I may say, never performed, and most satisfactory results are obtained from McEwen's.

EXCISION OF ELBOW.

Mr. Page: This young girl has had her right elbow excised for disease of the joint, and I am glad of the opportunity of showing her to the Society two years after the operation. The

joint is a very useful one. The feature of the case, to which I wish more particularly to direct attention, is the circumstance that a large portion of the humerus had to be removed, so large that, for a long time, it seemed likely the new joint would be a useless one. It is, however, to the removal of so large a portion of bone that I think the good result is due. The case illustrates very well what has often been pointed out—that it is well to remove bone freely in these cases. To do that, and to be careful not to divide transversely the attachment of the triceps, are the factors of a successful excision of the elbow.

MALIGNANT DISEASE OF HIP.

Mr. Page: This lad was admitted into the Infirmary the day before yesterday, suffering from the large solid growth of and around the upper part of the left femur, which you see. The patient is small, and much less developed than is usual at his age, sixteen years. About eight months ago, he fell and injured his thigh, since which, he has never been able to move about without crutches. A few weeks after this accident, a swelling showed itself at the seat of injury, which has steadily increased, and is still growing. It was looked upon as an abscess, but the feeling of fluctuation is deceptive, as is so often the case in these very elastic growths. The bone is fractured now, and the ordinary signs of fracture are present, shortening and eversion of the limb. I am told, too, that the thigh has been manipulated under chloroform, and crepitus is present. I look upon the case as one of malignant disease following, as is not unusual, injury, and accompanied by spontaneous fracture. The growth is encapsuled, and, so far as I can form an opinion, neither the muscles of the the thigh nor the skin are at present implicated. The boy has no sign of visceral disease, and the glands of his groin are not affected. The growth is undoubtedly a sarcoma, and, I fear, the only method of treatment is amputation at the hip. I see no reason why the operation should not be successful. These cases generally make good and often rapid recoveries; but, in the great majority, death ensues in a few months' time from malignant disease in the chest.

CASE OF JOINT DISEASE.

Dr. Murphy: I submit this interesting case for the opinion of the members present. H. B., aged 21, single, by occupation a driver. Admitted into Sunderland Infirmary, on January 31st, 1887. *Family history.*—Father died of consumption; mother alive and healthy; five brothers healthy. *Patient's history.*—Had typhoid fever three years ago (no history of syphilis or *gonorrhœa*). Seven years ago had necrosis of tibia of right leg. The thigh was much swollen; and, after the cure of the necrosis, the knee-joint

was noticed to be larger than the other. In October, 1885, he "caught cold," and, about four days afterwards, the right knee-joint began to swell, and became very painful. Went to a "bone-setter," who give him oils to rub the joint with. After trying these for a fortnight, he was admitted into the Infirmary, *i.e.*, in November, 1885. The joint was then found to be much larger than the left one, and to contain a quantity of fluid, which was removed by aspiration. Had a good deal of aching pain in the joint. Was kept in bed with the knee at rest on a splint for five weeks, at the end of which time he was discharged, the joint being strapped and bandaged. Was able to walk without the aid of a stick. Did no work until the summer of 1886, when he was employed as a farm-labourer. He states that, at this time, the swelling in the articulation had so decreased that the joint was very little bigger than its fellow. On September 24th, 1886, while climbing a wall, he slipped and "sprained his knee." It was very painful, but he managed to work for two-and-a-half hours afterwards. By that time, the effusion and pain had increased so much that he was obliged to desist. He was seen by a practitioner in the town, and the joint tapped about a week after this, and the tapping was repeated on two further occasions at intervals of three weeks. The knee has been blistered, and painted with iodine. Examination of patient for symptoms of locomotor ataxia gives a negative result, there being normal patellar reflex, no ARGYLL-ROBERTSON phenomena, nor any sign of optic neuritis; has never had "lightning" nor any other pains. The pupils, too, are rather dilated.

THE MEDICAL ASPECT OF ELEMORE EXPLOSION,

By J. ADAMSON, M.D.

Mr. President,

Pray allow me to tender my thanks to the Society for permitting me the privilege of bringing this paper forward at this hour.

My own difficulties and anxieties on the morning of the explosion as to what was to be done, what provisions made, and what precautions taken, led me to think that those of my professional brethren resident in colliery districts might like to hear of those difficulties, and how I endeavoured to meet and overcome them; and, if I am able to suggest hints to those who may unfortunately be placed in a position similar to what I was on the morning of December 2nd, my object in bringing it before you will have been fully attained.

I shall first state the arrangements made for the reception of the injured at bank, the immediate treatment of the injured, and the preparations made for those who might be brought to bank in a state of asphyxia, and submit a report of the condition of the dead.

My sincere thanks are due to those of my professional brethren who assisted me, and to those who expressed their willingness to do so. To Dr. Parker, Easington Lane, and Dr. Cross, Hetton Downs, I feel grateful for valuable services rendered; and I am much indebted to my colleague, Dr. Taylor, for his unremitting attention, and his esteemed advice and assistance. It is needless to say that the manager of the colliery, Mr. Lishman, gave me every assistance.

When I reached the pit-heap, at seven o'clock in the morning, a man, Johnstone, burnt over the head, face, hands, and arms, was leaving for his home, having been attended to by Dr. Taylor. The first thing I did was to have a cabin set apart as a surgery, and got a supply of lint, cotton wadding, carbolised oil, splints, bandages, beef tea, and stimulants. I got a table, on which artificial respiration could be used with the minimum of exertion to the operator, and had ready a small battery, hypodermic syringe and sulphuric æther, some emetics, and plenty of warm flannels and blankets. Fortunately, the artificial respiration arrangements were not required, but it was necessary to have them ready.

The joiners' shop was used as a mortuary, and there I made such examination as the coroner instructed me to make, and volunteered to see that each body was decently coffined, and sent home.

As each man and boy who was in the pit at the explosion came to bank, he was met at the pit mouth, enveloped in a blanket or quilt, taken to the surgery, there examined, attended to, and sent home, if necessary.

Of the 41 men and boys in the pit at the time of the explosion, 25 were dead when brought to bank, three have since died, and the others are now convalescent. The three that died were all severely burnt over the head, face, arms, and legs. The cause of death in one was meningitis and pneumonia, five days after; in the second case, the man said he had swallowed the fire, and in three or four days began to expectorate what seemed like shreds of mucous membrane; and, in the third, cause of death was exhaustion from suppuration. These men were all dressed with carbolised oil, in the first instance; but, Dr. PARKER, who saw the latter two to their homes, subsequently attended to them, and, I believe, dressed both with carron oil. The other was dressed throughout with carbolised oil. A fourth man, JOHNSTONE, burnt over head, face, and hands, recovered, and his case presents some points of interest.

When he was taken to his home, a single-roomed cottage, almost devoid of furniture, his wife, I am told, gave expression to a wish quite the reverse of complimentary to him. Throughout, I had the greatest difficulty in the treatment. He was in a state of more or less delirium for nearly five weeks, but had sufficient consciousness to be most persistent in a desire to have his own way. The first time he was dressed at home, carbolised oil was again used, but, I believe, in the absence of Dr. TAYLOR and myself, the dressings were frequently removed, and carron oil substituted. At the end of five days, the face, ears, neck, and right hand were dressed with iodoform wool, and the left hand, which, from the first, appeared to be the less severely burnt, was dressed with carron oil. His social surroundings, during this period, were of the most lively character. His wife and his mother were frequently quarrelling at his bedside, often on medical subjects, the only points of agreement seeming to be the virtues of carron oil as a dressing for burns, and the wholesome and useful character of Beecham's pills as an article of diet in such cases. This diet, in my opinion, was not beneficial, and, on two or three occasions, seemed likely to terminate my patient's earthly career. His wife, while quarrelling with the patient and the patient's mother, behaved, I am told, in a very different manner to a visitor named GEORGE. This my patient resented, and hence lived in a constant state of agitation and worry. At the end of a fortnight, December 16th, he was doing badly; erysipelas had set in, and extended over the occiput and down his back. He was delirious, and, at times, violent, and refused to allow hands or head to be dressed, and, for four days, nothing practically was done, except applying

a sheet of iodoform wool over the shoulders. Meanwhile, I had got a skilled nurse to attend to him, and his wife and her friend, George, had changed their quarters. After three weeks, the right hand, dressed with iodoform, was much better, but the joints of four of the fingers on the left hand were open; and although the man was very weak indeed, and had not been quite sensible since a few days after the accident, I advised amputation. To this his father consented, and on January 4th, nearly five weeks after the accident, I gave him chloroform, and removed the little, ring, and middle fingers, taking away the heads of the metacarpal bones, and the index finger at the middle of the first phalanx. The bones were very brittle, and gave way with the slightest pressure of the bone forceps. The integument was œdematous and flabby. I dressed with sublimate gauze, and, next day, his temperature, which had been varying from 102 to 104, fell to 101, and, since that time, he has made a good recovery. I mentioned that the shoulders were covered with iodoform wool, and, when examined at the end of four days, the erysipelas had gone, leaving a feeling of brawniness.

Of the remaining twelve men and boys in the pit, none were seriously injured.

I have here a detailed report, which was given in evidence at the inquest, of the appearances of the bodies. I was asked by the coroner to divide deaths into deaths from injury, from burns, from gas, and from any two or all of these. I examined each body superficially, and, on many, made an incision through the integument, usually on the chest. I regret that autopsies were not made in two or three typical cases.

CONDITION OF THE BODIES OF MEN TAKEN OUT OF ELEMORE PIT AFTER EXPLOSION OF DECEMBER 2ND, 1886. THE NUMBERS REFER TO ORDER IN WHICH BROUGHT UP.

When Examined.	No.	Appearances and Condition.	Cause of Death Assigned.
Dec. 2. 6 p.m.	1	R. L.—Burnt over face, arms, and hands; whiskers and hair burnt off; wound over left eye; no fracture of skull or limbs: chest very red and mottled; *rigor mortis* present.	Burns and shock.
Dec. 2. 7 p.m.	2	R. A.—Burnt over head, face, arms, abdomen, and legs; wound on back of head; no fracture of skull or limbs; *rigor mortis* very decided.	Burns and shock.
Dec. 3. 8·30 a.m.	3	R. F.—Head, face, and hands burnt; no injuries; chest mottled purple; *rigor mortis* decided.	Burns and shock.
Immediately after No. 3.	4	T. S.—Hair of head and eyelashes slightly singed; body pale; countenance placid; no injuries; no *rigor mortis.*	Gas. Unable to say what gas.
Dec. 3. 6 p m.	5	J. J.—Not burnt; no injuries; no *rigor mortis*; countenance placid; chest mottled pink and white; bright blood oozing from nose.	Carbonic oxide gas.
Dec. 4. 4 p.m.	6	G. N.—Head, face, hands, arms, chest, and legs burnt; hair burnt off head; both legs fractured below the knee; *rigor mortis* present.	Burns and shock.
Immediately after No. 6.	7	D. H.—Countenance placid; no injuries; body pink; subcutaneous fat pink; some coal dust in mouth; blood bright red; no *rigor mortis.*	Carbonic oxide gas.
Immediately after No. 7.	8	G. W.—Head, face, arms, chest, and legs burnt in front only; *rigor mortis* present; dark blood flowing from nose; no injuries.	Burns and shock.
Immediately after No. 8.	9	R. H.—Countenance placid; no injuries; not burnt; skin and subcutaneous fat pink; mouth filled with coal dust; *rigor mortis* present.	Carbonic oxide gas.
Immediately after No. 9.	10	J. W.—Countenance placid; not burnt; no injuries; skin and fat pink; *rigor mortis* present.	Carbonic oxide gas.

When Examined.	No.	Appearances and Condition.	Cause of Death Assigned.
Immediately after No. 10.	11	M. T.--No shoe on right foot; decomposition set in; not burnt; dark blood issuing from nose; abdomen and chest pale; legs inclining to pink; no injuries; countenance placid; mouth filled with coal dust.	Suffocation from coal dust, probably aided by carbonic oxide gas.
Immediately after No. 11.	12	G. A. P.—Face rather drawn to left side; not burnt; no injury; surface of body and fat pink; *rigor mortis* present.	Carbonic oxide gas.
Immediately after No. 12.	13	S. P.--Countenance placid; not burnt; fat pink; teeth clenched; mouth injured, probably by falling; no other injuries.	Carbonic oxide gas.
Immediately after No. 13.	14	T. C.—Countenance quiet; not burnt; no injuries; face pink; chest and abdomen mottled pink and white; *rigor mortis* present.	Carbonic oxide gas.
Immediately after No. 14.	15	T. R.—Countenance quiet; not burnt; no injuries; surface of body and fat pink; *rigor mortis* present.	Carbonic oxide gas.
Immediately after No. 15.	16	R. V.—Countenance quiet; no injuries; not burnt; face pink; surface of body and fat pale; *rigor mortis* present.	Carbonic oxide gas.
Immediately after No. 16.	17	J. G. L.—Countenance quiet; no injuries; not burnt; bright blood coming from nose; surface of body and fat pink; *rigor mortis* absent.	Carbonic oxide gas.
Immediately after No. 17.	18	W. R.—Countenance quiet; surface of chest pale; fat pink; no injuries; not burnt.	Carbonic oxide gas.
Dec. 4. 10 p.m.	19	W. S.—Countenance quiet; not burnt; no injuries; face, chest, and fat pink; *rigor mortis* present.	Carbonic oxide gas.
Immediately after No. 19.	20	G. A. P.—Face and hands burnt; large wound over forehead; no fracture; wound filled with coal dust; surface of chest pink; flesh dark colour; fat very light, out of which oozed pink or crimson blood; *rigor mortis* absent.	Burns and shock, probably aided by injury and carbonic oxide gas.

When Examined.	No.	Appearances and Condition.	Cause of Death Assigned.
Immediately after No. 20.	21	S. G.—Face very black with coal dust; hands and face burnt; large wound over front of head; no fracture; surface of chest and fat pale; muscles dark; *rigor mortis* absent.	Burns, injury, and shock.
Dec. 5. 6 p.m.	22	R. T.—Countenance quiet; no injuries; not burnt; mouth full of coal dust; surface of body pale with patches of pink; fat pink.	Suffocated by coal dust, probably aided by carbonic oxide.
Immediately after No. 22.	23	G. J. S.—Not burnt; face scraped as if by fall; mouth full of coal dust; chest bruised and one or two ribs fractured; muscles dark; dark blood coming from mouth; surface of body mottled; *rigor mortis* absent.	Same as No. 22.
Immediately after No. 23.	24	G. T.—Countenance quiet; no injuries; not burnt; no dust in mouth; surface of body mottled pink and white; fat pink.	Carbonic oxide.
Dec. 7. 11 p.m.	25	J. C.—Body decomposed; hair and clothing not burnt; face much swollen; surface of body pink; no injuries.	Carbonic oxide.

Some of the bodies retained their warmth much longer than would be expected in such cold weather, and the *rigor mortis* was much delayed in those who died from carbonic oxide. It has been shown by Brown-Sequard that if arterial blood be made to pass through a limb or body after death, *rigor mortis* is retarded; and it is also, I believe, established that heat is generated by muscles when passing into a state of *post-mortem* rigidity. This might account for part of the heat, but I would further suggest that a material amount of heat might be evolved by the chemical combination of carbonic oxide with the blood or the tissues of the body.

Many of the bodies were mottled pink and white, the darker shade of pink being usually along the course of the larger arteries, the dark shade down the course of the internal mammary and epigastric, being, in some, very marked. It seemed as if the smaller arteries or capillaries contracted, and refused to allow the poisoned blood to enter, or, still more likely, it may be, the gas had a direct

lowering effect on the contractions of the heart, and rendered it unable to drive the blood through the capillaries. In those who died from carbonic oxide the blood was a bright red colour, and appeared thin and watery, as if the red corpuscles had been destroyed or materially altered. It resembled ordinary red ink. In those who suffered from carbonic oxide, without fatal results, the gait was unsteady; each complained of intense headache lasting for some hours, with a feeling of sickness, but inability to vomit, the conjunctivæ were conjested, the heart's action was tumultuous, and all seemed overcome by the gas without the slightest warning. The symptoms and feelings pointed to the treatment adopted. An emetic of Vin. Ipecac. or Zinci Sulph. was given, and sometimes one having failed the other was used, as it was by no means easy to produce emesis. There seemed the willingness on the part of the stomach to respond to the emetic, but the ability to do so seemed wanting. The headache, in all cases, was most marked, described as a feeling of tight band round the head, and all complained of a feeling of discomfort in the epigastrium.

With regard to the treatment of those burnt, I should be inclined, in case of a similar accident, to envelope the burnt parts in iodoform wool at once, and continue such treatment. These were not cases of ordinary burn. The men were exposed to a strong draught of cold air for some hours after being burnt, and then the excitement and subsequent mental depression consequent on circumstances are important factors to be considered.

In Johnstone's case, I attribute the loss of his fingers to the excitement and misery of his home surroundings, the potency of Beecham's pills, and the frequent dressing. The action of the iodoform wool on the erysipelas seemed beneficial.

There was the case of a man, aged 65, who was one of the explorers. He was set to watch an air crossing, and left in what was considered a safe place. Some time after he was found in a state of unconsciousness, and breathing heavily. When I saw him his pupils were dilated and insensible to light, his breathing was stertorous, it was impossible to rouse him, his extremities were cold, temperature 105. My diagnosis was apoplexy, my prognosis very bad. I had sinapisms applied to his legs, chest, and neck, and ordered him an enema of salt and water, and, within twelve hours, he was conscious, and, two days after, was almost quite well.

In an accident like this, the need of a hospital is much felt, and, in such, the injured would have a much better chance of recovery. Those with a medical or surgical knowledge of mining districts know how, in case of accident, neighbours crowd in, sit in the room of the injured man probably discussing the details of the accident, perhaps in a low tone, but still producing in the

patient such a feeling of unrest as seriously militates against his recovery, even without taking into account the vitiation of the air by respiration, and the evils consequent on it. Information given by classes and lectures to intelligent women will do good; but, as Sir W. GULL said some years ago: "You cannot put a quart into a pint pot;" and it is difficult to get a second idea into minds in which there is capacity for one only, such one usually being the scandal about neighbours and friends. Even when life is not endangered, how often have we seen cases of contraction of the limbs and anchylosis, rendering the person a much less valuable member of society, and, it may be, a burden on the rates through life, and all through the selfwill of the patient, and the want of firmness on the part of friends in carrying out treatment.

This paper is already too long, and hence I must leave some important medico-legal questions which were involved, and, also, some incidents of my examination and cross-examination at the inquest, which, if taken alone, might be interesting, but I dare not attempt to trespass further on your patience.

COCAINE.

By Dr. WM. ROBERTSON.

Mr. President,

The following brief notes of cases operated on under the influence of cocaine may, I trust, prove interesting, and further tend to illustrate the undoubted benefit accruing to surgery through the introduction of this local anæsthetic.

The cases to which I shall refer briefly are the following :—

2 cases of Staphylorrhaphy.
2 do. Sebaceous Cyst of Scalp.
1 do. Tumour of Neck.
2 do. Whitlow.
5 do. Strabismus.
1 do. Hæmorrhoids.
Its use in Midwifery and Dentistry.

The first case of cleft palate was that of a girl, æt 12 years, with a complete cleft of the soft palate, displaying, at the same time, typical symptoms of hereditary syphilis. The fringes of both hands had been all more or less affected by syphilitic dactylitis. The teeth were characteristic, and she had, besides, well-marked choroiditis diseminata. This patient had been operated on at the age of four years, but without success. Proceeding to operate, I injected from a 10 per cent. sol. about 1 gr. of cocaine into each side of the soft palate, and allowed 10 minutes' interval to elapse before commencing the incisions. The operation was performed in two stages—the division of the muscles on the first day. This was performed painlessly, so far as I could judge from the patient's conduct and statement. On the second day, the rawing of the edges and the introduction of the sutures were effected after the use of cocaine. These necessarily tedious proceedings were well borne by the patient, who sat up throughout on a common chair well in front of the light. The hæmorrhage was comparatively slight, and was with ease controlled and got rid of. There was no tendency to fainting; and, if the patient's statement is to be relied on, the operation was borne without distress. The patient, after a rest of half-an-hour, went home by rail a distance of 10 miles. The subsequent result, in this case, was not favourable, a small tract only of the wound uniting the syphilitic factor militating against a better result. I have, however, introduced it to shew what can be done with cocaine with a very young subject.

The next case is that of a young man, J. S., æt 19, of healthy parentage, and sound constitution, who had a cleft of the palate extending through the soft and about half-an-inch of the hard palate. This case had been already passed over as unfit for

treatment, and I thought as much myself before I began; but, being pressed to operate more from the result of having explained the use of cocaine to the parents, I consented.

I proposed, first, closing the soft part of the cleft, and this was done, as in the last case, in two stages. The cleft, in this case, was extremely wide, measuring quite an inch across, all that could be seen of the soft palate on each side being two seemingly insignificant curtain-like folds hanging from the margins of the hard palate. The lateral walls of the nasopharynx were freely exposed, and the muscles of the eustachian tube plainly seen when called into action.

After cocaine was injected, each fold was put on the stretch, and the knife entered under the hammular process, and, transfixing the tissues, was carried down to within a quarter-of-an-inch of its free margin. Insignificant, easily-controlled hæmorrhage took place, and the operation was painless. The subsequent part of the operation was performed next day, painlessly, and without mishap, the free lateral incisions affording all the relaxation of parts required. When the parts were drawn together, the finger could easily be introduced into the apertures left by the lateral incisions. These were subsequently one, as both have filled up by granulation tissue. The wound, closed by five sutures, measuring at the time $1\frac{1}{2}$ inches, healed satisfactorily throughout, and left but a small aperture in the hard palate to be dealt with at a subsequent operation. The operation lasted one hour, there being no need to hurry; and, at intervals, as parts became sensitive, fresh injections were used. Much less hæmorrhage took place than with chloroform, under similar circumstances, while the parts, both from the position and active intelligence of the patient, were readily got at and manipulated. There was little subsequent shock; the patient rested a short time, and then travelled home in a cab, a distance of three miles.

The next case that I shall mention is that of a young lady, Miss R., æt 26 years, suffering from an oval-shaped tumour, of hardish consistence, situated near the insertion of the sterno-mastoid, and extending forward and internal to the ramus of the lower jaw. The tumour was of sufficient size (as large as a good-sized walnut) to cause disfigurement, and I advised operation, anticipating that it would be found to be a sebaceous cyst, and, therefore, easily removed, without much pain, under cocaine. The operation had, however, to be postponed, because of the existence of a fœtid ottorrhœa existing in the ear over the tumour. This was, on investigation, found to be due to a polypus of solid consistence, growing from the memb. tymp. Cocaine was used, and the polypus was snared successfully. There was some degree of pain, the mere soaking of the parts in cocaine not insuring the same amount of anæsthesia as by injection. With the removal of

the polypus, all discharge from the ear ceased, nor could any defect in the drum after be made out. Hearing, before in abeyance, was soon restored to its normal state.

The operation on the tumour could now be proceeded with. About $1\frac{1}{2}$ grains of cocaine was injected into the skin over the tumour, and, after 10 minutes' interval, a painless incision was made over the tumour. After some little dissection, the capsule was exposed, freely opened, and its contents turned out. This gave additional space to work in, and the cyst was carefully dissected out by cutting closely on the capsule. The posterior margin of the jaw was exposed for more than an inch, and the bed of the cyst was found to extend internal to the ramus. Not half-an-ounce of blood was lost. The patient sat up on a sofa during the half-hour of operation, and complained more of its disagreeableness, not of pain. The result was, in every respect, satisfactory, the wound healing throughout by first intention, and the cicatrix is now comparatively free from adhesions to underlying parts. All the help I had was that afforded by the patient.

As regards the use of cocaine in ophthalmic practice, I have few remarks to make. Out of 10 cases of strabismus lately met with, five were operated on under cocaine, one of these being a boy of 12 years of age, who bore the operation without flinching. I need not advert to the advantages here gained by its use. The patient can turn the eye as desired, and the result of the tenotomy can be at once gauged. After its performance, under chloroform, the patient cannot come out of the narcosis and be again put under, if further interference is necessary. In one of the five cases alluded to, I endeavoured, by injecting cocaine under venous capsule, to anæsthetise the muscle and adjacent surface of the sclerotic, the parts most sensitive that are met with in the operation, but this caused such a swelling of the connective tissues near and about, that all the landmarks of the region were so much obscured, that I should hesitate to repeat the process. The case, however, terminated in a satisfactory result. This was in a young girl, æt 11, of very nervous constitution, subject to fainting attacks, and to whom chloroform had been administered, but had to be dispensed with, dangerous symptoms arising. It occurred to me, at the time, that the pad of swollen tissue at the inner canthus served to support the eyeball until union in the desired position had taken place.

I have nothing but unqualified praise to bestow upon the use of cocaine in that most painful disease of whitlow. Its very frequency renders it desirable that some effective anæsthetic, the use of which entails neither fuss nor danger, be employed. This we have in cocaine. In two cases I met with lately, I employed it in the usual way, 10 per cent. sol. After injection, the pain of the whitlow disappears as if by magic, and, before long, you are

allowed to manipulate the finger as seems desirable. The patient looks on in amazement at the incision being made without pain, and further, the parts can be examined, and probed, and stuffed with lint, without fuss or hurry, and without pain.

In two gentlemen, suffering from sebaceous cysts of scalp, I removed several of the most troublesome ones, in each case, without the slightest approach to pain. The several wounds occasioned, after being irrigated with corrosive sublimate sol., healed by first intention throughout.

Cocaine is again a great aid in mitigating the distress of child-birth. Its frequent application in 10 per cent sol. to the walls of the vagina, to a great extent, removes the pain suffered during the stretching of the perineum. It almost abolishes the pain due to the use of the forceps, and renders painless the introduction of the hand to remove the placenta, and rents of the perineum can be painlessly dealt with.

Quite recently I met with a case of hæmorrhoids, and, convinced of the powers of cocaine when properly manipulated, I determined to operate by ligature. Under its influence, accordingly, I freely injected about $2\frac{1}{2}$ grains into parts around the anus, and into the protruded parts of the hæmorrhoidal mass, and allowed the usual interval to intervene. I effected dilitation of the anus without manifest discomfort, and separated the mass of piles, which was one inch broad, and protruded half-an-inch into lŭmen of tube, without pain. Ligatures were applied as high as the fingers could reach, and the external ball of skin, about the size of a small nut, was excised bodily without pain. The greatest care in tying the ligatures was observed, because cocaine causes swelling of the parts, nor was much of the pile mass excised.

It remains for me now to make a few remarks in connection with the results I have given.

Of the dangers of cocaine I am ignorant, never having seen the slightest approach to any such, and the only thing wanting in connection with its use is some means by which to support the patient's *nerve* during the operation, something to divert his attention during operation. A pipe with smokers is a useful adjunct. The ingenuity of the operator can, however, overcome this difficulty, and so prevent panic.

The immediate local effect of cocaine on the tissues is constriction of the blood vessels, a rapid anæmia being produced, to be shortly followed by a considerable swelling of the connective tissues. The terminal sense organs soon become impaired, and the part is insensible to pain in about 10 minutes. The swelling of the tissues is a point of importance, and may be a source of danger in dangerous neighbourhoods; but it is an advantage, as regards the use of sutures, for the parts can be securely brought together

without the fear of subsequent swelling strangling the tissues. The constriction of blood vessels lessens the amount of hæmorrhage. That the use of cocaine does not prevent the primary union of wounds I can safely assert, for I have never seen quicker and better primary union, and more perfectly linear cicatrices, than after wounds made under its influence.

I need not summarise all the advantages of operating on a patient able to aid you, at every turn, in such cases as I have mentioned. I have but to ask you to contrast a case of staphylorrhaphy, under chloroform, with one done under cocaine. In the latter case, the use of the gag, the spluttering and chocking, and the anxiety from impending suffocation, are all done away with, while you retain the active intelligence of the patient to aid you, and he can assume the most favourable position for light and operative procedures.

Mr. PAGE: I look, Sir, upon Dr. ROBERTSON'S paper as an interesting and important contribution. So far as my own practice and observation goes, the use of cocaine has been confined to the extraction of cataract, and I can bear testimony to its great use in such cases; but Dr. ROBERTSON shows us that it can be successfully employed in a larger field, and I shall certainly, armed with his authority, take an early opportunity of using it as he directs, viz., by injecting it into the tissues to be operated upon. The dose he employs, two-and-a-half grains, seems to me large; and I think I have seen reported that toxic symptoms have arisen from the injection of one grain. No doubt, Dr. ROBERTSON'S success has been due to his bold use of the drug, and I am very glad to find he has experienced no inconvenience from his practice. Perhaps, at some future time, we may have the pleasure of learning from Dr. ROBERTSON of other cases in which he has used cocaine as a local anæsthetic, with equally satisfactory results. I am sure, if the drug can be safely employed, and is as efficacious in other hands, it will prove a valuable addition to the resources of the practical surgeon.

PARALYSIS FROM PERIPHERAL NEURITIS.

(Continued from page 111.)

By DAVID DRUMMOND, M.A., M.D., Physician to the Newcastle Infirmary.

The cases of multiple neuritis referred to in the last number of the Society's Transactions resemble somewhat closely the account given by Hirsch, in the Hand-book of Geographical and Historical Pathology, of the disease met with in Japan and described under the name of kakké or beriberi. There are two forms of this disease, the paralytic, dry, or atrophic variety, and another which is characterized by the presence of dropsy, in addition to the paralysis. The former would appear to show itself by a gradually increasing paralysis (sensory and motor), with muscular wasting and pains, commencing usually in the lower extremities, and attacking, later, the arms, but, in acute and severe cases, extending over the whole body. Unlike the examples of multiple neuritis I have recorded, in the cases of endemic neuritis of Japan, and other parts of the East Indies, there are marked disorders of the blood-forming organs giving rise to prostration and anæmia, and, in many cases, the nervous symptoms are of decidedly less importance than the general blood state.

The diagnosis of the non-alcoholic form of multiple neuritis should not be difficult now that the existence of such a disease is so generally recognised; except, perhaps, in some special cases, as, for example, when the distribution of the paralysis is hemiplegic, when cerebral disease might suggest itself. The progressive paralysis, with wasting, attacking muscle after muscle, and attended by loss of tendon-reaction and skin reflexes, make up a suggestive picture, especially if the electrical excitability is either lost or markedly modified. It is well to recollect, however, that the muscles do not always waste to any striking degree, that the myotatic irritability and superficial reflexes are not always absent, and that the electrical reaction is not invariably characteristic. Indeed, it would appear that too strict and rigid an adherence to the recognised type of peripheral paralysis has led many an observer into error. I have already referred, when dealing with the diagnosis of alcoholic cases, to the order in which the muscles become paralysed in neuritis, as compared with spinal lesions, and I may be allowed once more to emphasize the fact that, in peripheral paralysis beginning in the lower extremities, the muscles that flex the foot at the ankle (anterior tibial group), are usually first attacked, then the knee extensors. Whereas, in chronic and sub-acute cases of atrophic spinal paralysis, the march is often feet muscles, calf, anterior tibial group, flexors of knee, and so forth. Again, peripheral lesions attacking the upper

extremities, most frequently show themselves first by paralysis of the extensor group of the wrist and fingers, whilst the spinal disease affects primarily the small muscles of the hands.

I have observed that we must not always look for marked wasting, nor for the formula of the reaction of degeneration, or even diminished electrical contractility and loss of tendon-jerk, and, I would add, impairment of sensibility, as I have met with undoubted cases in which the more common features of peripheral paralysis were well-nigh reversed, of which the following is an example :—

A. J., aged 24, a baker, was admitted into the Infirmary for paralysis of the right arm and face. Six months previously, when in a semi-intoxicated condition, for he was much addicted to alcohol, he fell and struck his right elbow. The blow was evidently severe, as an extensive bruise appeared at the back of the joint. In a week there was complete wrist drop. Then he noticed that he was unable to grip with the right hand, and that both arms were slightly affected by tremor. At the time of his admission, the right arm and hand were paralysed, the wrist and fingers were dropped as in lead palsy, and the flexors were decidedly weak. The supinator longus was paralysed and atrophied, but, with this exception, there was little or no diminution in the bulk of the paralysed muscles. The small muscles of the hand supplied by the ulnar did not appear to be materially affected. The sensibility of the limb was, practically, unimpaired. A tremor, often scarcely appreciable, but, at times, fairly marked, was noticed in both hands, especially when a muscular effort was made. The left arm was somewhat weaker than in health, but there was no definite paralysis, and the same may be said of both legs. The knee-jerk was very lively on both sides. The plantar reflex was slightly marked, contraction of the quadriceps being especially noticeable. The face was paralysed on both sides, but the impairment was incomplete, as grimaces could be made in a feeble and tremulous way. There was very pronounced lateral nystagmus. All the affected muscles responded to weak, continuous, and interrupted currents, and this heightened contractility increased as motor power returned.

This patient is, at present, under treatment, and promises to do exceedingly well. I believe, in his case, the alcohol operated as a predisposing cause, whilst the injury determined the attack of neuritis. The diagnosis was, necessarily, a matter of difficulty, as the tremor and nystagmus forced disseminated sclerosis into the consideration. However, the distribution of the paralysis (one arm and both sides of the face), as well as the arm muscles affected (musculo-spiral group, small muscles of the hand escaping), and the fact that the supinator longus was atrophied, served to convince me of the peripheral origin of the attack.

I shall next briefly consider the features of lead paralysis, which I am tempted to do by the fact that I have recently had the opportunity, very seldom got, of examining the nerves and cord in a typical case of lead drop-wrist. But for this, I would not venture to discuss the subject, as I am sure every member is thoroughly familiar with the classical signs of this variety of paralysis. I am unable to give, in detail, the history and symptoms of the case, on which I made a *post-mortem*, as the patient died of pneumonia and granular kidney a day or two after his admission to hospital, and before his case was taken in the case book. I have, therefore, selected another example of lead paralysis, which resembles very closely the nervous features of the case referred to, and will serve to illustrate the distribution and behaviour of the paralysed muscles generally in lead palsy.

D. B., a single man, aged 34, a labourer at a white-lead factory, was admitted into the Infirmary, on May 6th, 1886, complaining of double dropped-wrist of one month's duration. He stated that he had suffered from lead-poisoning five times. The first three attacks were of the nature of colic. In the fourth, "he had numbness and weakness of the arms," in addition to colic, and in the fifth, which was the most severe, the arms became paralysed.

History of the present (fifth) attack:—He continued under treatment for the fourth attack for about a fortnight, and then, thinking himself well again, he returned to the factory, and remained at work for about five or six months. He was engaged, at this time, in the washing department, and had to drain away the water from the large tanks after the lead had gravitated to the bottom. His hands and arms were thus constantly in water impregnated with lead. About five weeks before his admission into the Infirmary, he noticed, when at work, that the hands, especially the right, were not so strong as usual, and, in consequence, he had a difficulty in grasping. Next day, the third and fourth fingers of the right hand dropped when an effort was made to extend them. In this condition he continued to work for a few days, but at length the hands became so weak, that he was compelled to desist. Accordingly, he ceased work on the Tuesday, and, on the following Saturday morning he noticed, when he awoke, that both wrists had dropped, rendering the hands almost useless. The left became paralysed without the preliminary loss of power in the third and fourth fingers that characterised the onset of the paralysis in the case of the right hand. In addition to the paralysis, he suffered from a sharp attack of lead colic, which lasted for eight days.

On admission, about five weeks after the onset of the paralysis, the following points were noted:—The patient's skin presented the usual earthy, sallow appearance; the lips were pale, and the

nails somewhat purple; the temperature was normal, and the pulse was slow—50; and there was well-marked double drop-wrist, with the usual exemption of the supinator longus muscles. The flexors appeared to be weaker than in health, but this was obviously due to the disadvantage under which they laboured, owing to the paralysed condition of their antagonists. Marked atrophy of the extensor muscles, with loss of faradic excitability, was also apparent.

This patient was kept in hospital until the 18th of July, when he was discharged very much improved, though the extensors had not entirely regained their power. The treatment consisted mainly in the use of the interrupted current.

About the same time that the patient, whose case I have just related, was an inmate of the Infirmary, a man, aged 47, was admitted, complaining of double lead paralysis (drop wrist), acute pneumonia, and old-standing kidney disease. His paralysis was of about eight weeks' duration, and, while off work (white-lead works) for this and renal dropsy, he was attacked with pneumonia, about six days before his admission. The blue line on the gums was well-marked, and it was quite obvious that the paralysis of the extensors was due to lead-poisoning. He died two days after his admission, and a *post-mortem* examination was made, with the following result:—

Pronounced blue line on the gums. Double pneumonia; hypertrophied left ventricle; granular kidneys. The arms were markedly wasted, especially on the extensor aspect. The common extensors were extremely pale and soft, and presented a great contrast to the adjacent red and healthy-looking supinator longus muscles. Portions or the musculo-spiral and posterior interosseous nerves were removed for microscopical examination; the cervical enlargement of the spinal cord was also examined and preserved, as well as portions of the kidney and paralysed muscles.

Pieces of the kidney were sent to Dr. Walker for chemical examination, who reported that the small portion he examined—about a drachm—contained $\frac{1}{7000}^{\text{th}}$ of a grain of lead.

It was also ascertained that the muscles, healthy and paralysed, contained lead, about the same quantity being detected in both.

The spinal cord was examined microscopically, but no changes were detected.

The posterior interosseous nerves showed some very pronounced morbid conditions. In some sections, there was a great increase in the endoneurium, some of the nerve bundles being made up almost entirely of new fibrous tissue. In others, again, the endoneurium was scarcely altered at all, but the axis cylinders were seen to be much swollen. Here and there groups of new axis cylinders replaced the normal structure, forming the greater

portion of the bundle. When viewed longitudinally, many of the nerve fibres looked like bundles of connective tissue, though, in places, granular masses of neurilemma could be seen.

The musculo-spiral presented, in places, similar changes, especially small bundles of new axis cylinders and degenerated fibres, but the great bulk of the nerve was practically unaltered. The simplest explanation of the presence of the degenerated fibres in the main trunk of the musculo-spiral was that they were the continuation upwards of the morbid fibres of the posterior interosseous nerve. No change in the endoneurium was to be seen in the musculo-spiral. Microscopical examination of the paralysed extensors revealed little worth noting. As a rule, the cross-striation of the muscle fibres was perfect, but, here and there, even with the high power, all trace of striation was lost, and this homogeneous appearance was observed in several fibres lying side by side. Some of the fibres were much reduced in size, causing a striking inequality in bulk. In a few fibres granular degeneration could be detected, but this was by no means common.

In this case, at least, it will be seen that the lesion was peripheral; but, whilst I am inclined to the view that lead palsy generally is the result of a peripheral lesion, it must not be lost sight of that some observers, Oppenheim, for example, have described changes in the cells of the anterior cornua of the spinal cord, and that De Watteville and Erb have recently made the suggestion that a functional lesion of the anterior ganglionic cells, insufficient to produce gross changes, may give rise to degeneration of the motor nerve trunks, and, therefore, in reality, the primary disturbance from lead intoxication may fall upon the cord. I confess I am opposed to this latter view, and am disposed to regard the peripheral lesion as the essential factor in the production of the paralysis.

It is a well-known fact that lead palsy may extend beyond the upper extremities, indeed, cases are frequently met with in which the lower extremities are attacked, when double *ankle-drop* generally occurs. It is worthy of attention that the tibialis auticus has been spared in many of these cases, a point of interest when the exemption of the supinator longus, in the case of ordinary drop-wrist, is recollected. In some instances, the paralysis is widely dispersed over the muscles of the limbs, trunk, and face, but these are comparatively rare.

As in the majority of the cases of paralysis from peripheral lesion, no matter what the cause may be, we meet also in lead paralysis with an alteration in the electrical reaction. Faradic contractility is lost early, and, in many cases, the *reaction of degeneration* is observed, but, in my own experience, it is difficult to demonstrate the typical reaction of Erb, loss to both forms of current being the rule.

The group of cases, I am now about to describe, is characterised by paralysis of one or both upper extremities—brachial monoplegia or paraplegia. In some, injury appeared to be responsible, in others, rheumatism ; whilst some were erratic forms of alcoholic paralysis ; and, in not a few, there was a marked absence of any etiological factor whatever. In the great majority, the lesion was chiefly motor, and the paralysis was most pronounced in the region of the distribution of the musculo-spiral and ulnar nerves, and the tendency was, undoubtedly, towards recovery.

In the following case, it was difficult to assign any cause for the paralysis, which affected almost symmetrically certain muscles in both arms, though the rheumatic theory appeared most tempting:—

J. B., aged 39, a strong, robust looking man, engaged in loading ships on the Quayside, was admitted into the Infirmary on June 17th, 1886, complaining of loss of power in both hands, of three weeks' duration. The family history was good. An enquiry into his previous history elicited little that was material to the case. He had not suffered from syphilis, and was by no means a heavy drinker. His work, as a Quayside labourer, necessarily exposed him, in a trying way, to the weather. Six weeks before his admission to hospital, he experienced an attack of lumbago, for which he was obliged to rest from his employment for upwards of three weeks, when the pain, which was ascribed to rheumatism, subsided, and he felt himself able to renew his work. On rising from bed one morning, soon after, nearly three weeks before he was admitted as a patient, he observed numbness in the hypothenar eminence and along the ulnar border of the little finger of the right hand, the extensor of which was found to be paralysed. The numbness rapidly extended, and, in a few hours, affected the ulnar border of the right ring finger, which he was also unable to extend fully. In a few days, the extensor paralysis of these fingers becoming gradually more and more pronounced, he detected a similar numbness in the hypothenar eminence of the left hand, and now perfect extension of the little finger of this side was impossible. Next day, decided extensor weakness of the ring finger of the left hand was noticed, the two fingers of both hands becoming impaired in precisely the same way, and later, the middle fingers became affected. During the development of the paralysis no pain was complained of.

On admission he was seen to be a stoutly-built man of fourteen stones weight, and looked the picture of health. On attempting to stretch out the fingers of the right hand, the middle, ring, and little fingers remained partially flexed, the first phalanges being extended fully, but the second and third were bent so as to give the hand an imperfect claw-like appearance. There was no rigidity, as the fingers could be straightened by passive movements without

difficulty. No wasting was observed on the palmar surface, but, on the dorsal, there were inter-metacarpal depressions, towards the ulnar side especially. The act of separating the fingers was very imperfectly performed. The paralysis appeared to affect the following muscles:—Abductor minimi digiti, opponens minimi digiti, ulnar lumbricales, interossei, adductor pollicis; in other words, accepting DUCHENNE's explanation of the actions of the smaller muscles of the hand, and HUTCHINSON's confirmation of the same, the paralysis was limited to the muscles supplied by the ulnar below the articular (wrist) branch. The ulnar flexors of the carpus and little and ring fingers were intact, and the sensory paralysis, which was very carefully tested, was limited to the ulnar portions of the palm and back of carpus, and the ulnar side of the ring finger, together with the little finger. The left hand was affected in almost precisely the same manner; the anæsthesia was the same; an attempt to extend the fingers resulted in drawing back of the first, and flexion of the second and third meta-carpal bones of the three inner fingers, whilst separation of the fingers was interfered with, and it was with difficulty he could approximate the thumb and little finger. The paralysed muscles responded very feebly when tested with the interrupted current; the continuous current was out of order during the short time the patient remained in hospital. Very rapid improvement took place, and, though the course of treatment (faradism and massage) was very brief, the paralysed muscles soon regained their functional activity.

In the following case, gout, or perhaps more correctly speaking, rheumatism, was probably the cause of the attack of neuritis:—

ELIZA M., aged 64, was made an in-patient of the Infirmary on March 24th, 1886. For upwards of two years before the paralytic symptoms appeared, she suffered, from time to time, from painful swelling and redness of various joints—sometimes the ankles, sometimes the phalangeal joints were affected, the inflammation only lasting a day or two. Four months before she came under observation, she discovered, on waking one morning, that the middle finger of the right hand was contracted, red, hot, and swollen. This was poulticed, and the doctor incised it on the dorsal surface, but no pus escaped. It was afterwards painted with iodine, but soon the other fingers of the same hand became contracted, and then the finger joints of the left hand grew painful, and their flexors became weak. On admission, the fingers of the right hand were contracted, rigid, and resisted passive movements, especially the middle and ring fingers. The common extensor was atrophied, and the flexors of the fingers were considerably weakened, but flexion and extension of the carpus were, practically, unaffected. The extensors of the left hand were similarly affected, though to a slighter degree. The dorsal surfaces

of both fore-arms were anæsthetic. The paralysed muscles showed a decided quantitive diminution when tested electrically. Iodide of potassium was ordered, and massage and faradism employed, with decided benefit.

NORTHUMBERLAND AND DURHAM MEDICAL SOCIETY.

SESSION, 1886-7.

MARCH MEETING, 1887.

The last Monthly Meeting of the Session was held in the Library of the Newcastle-upon-Tyne Infirmary, on Thursday evening, March 10th, Dr. Hume, President, in the Chair.

NOMINATION OF OFFICERS.

The President announced that nominations for officers of the Society for next Session should now be handed in, and that the present officers were eligible for re-election. No nominations were received up to the close of the meeting, and the list of office bearers, therefore, stands unaltered.

NEW MEMBERS ELECTED.

The following gentlemen were unanimously elected members of the Society :—

John T. Hutchinson, L.R.C.P. (Edin.), Easington.
Briton S. Robson, M.B., C.M. (Edin.), Newcastle-upon Tyne.

NEW MEMBERS PROPOSED.

The following gentlemen were proposed as members of the Society :—

J. Todd, M.R.C.S. (Eng.), Gateshead.
P. Maynard, M.B., C.M., the Infirmary, Newcastle-upon-Tyne.

THREE CASES OF SUCCESSFUL TREPHINING.

Dr. Hume: This patient was struck on the left orbital ridge by a bar of iron, and, on admission to the Infirmary, there was great swelling of the face over the site of the blow, and the orbital

ridge was fractured, but he presented no cerebral symptoms. After he had been in the hospital for some days, however, his pulse became suddenly, and without apparent reason, very unsteady, and, on the strength of this, I determined to trephine. On trephining, it was found that the whole of the roof of the orbit was fractured, and there was a small piece of bone sticking into the *dura mater*.

In the second case, this little boy was admitted under my care after having been knocked down by the shaft of a cart. He had a compound depressed fracture of the left parietal bone, and I trephined at once, removing some fragments, and he has recovered without a bad symptom.

My third case is a most interesting one on account of the patient's age. He was struck on the head by a piece of wood, and was admitted into the Infirmary suffering from a compound depressed fracture of the skull. He was trephined, and several fragments of bone were found sticking into the *dura mater*.

I bring these cases before you, gentlemen, to illustrate the rule of surgery which calls for primary trephining in all cases of compound depressed fracture of the skull. What I should like to point out is the uniformly good results obtained by this procedure when compared with the anxiety these cases give when treated by the method of expectation. To illustrate this, I have a case in the hospital at present in which the patient was struck on the head by a passing engine. There was no depressed fracture, but a small piece of bone was chipped out by the projection which struck him. This man has not had any brain symptoms, but, at the end of five weeks, he is still in the hospital, and though the small piece of bone has now necrosed, and he is doing well, yet I think this case would have been better treated by primary trephining.

DEPRESSED FRACTURE OF SKULL.

Dr. Bradley: This man got a blow on the head from a hatchet, 24 years ago, sustaining a depressed fracture of the skull, the evidence of which is very plainly visible here. He follows a labouring occupation, enjoys perfectly good health, has no affection of the head, and has perfect vision.

Dr. Gowans: Now and again I have had these cases of depressed fracture under my care, principally arising from falls from the mast or down a hold. I was surprised, however, to hear Dr. Hume advocate primary trephining in all these cases, because Dr. Hume is a Scotch student, and such a procedure is totally opposed to the teaching of the Scotch schools. I have seen cases recover remarkably well where nothing has been done, but I must say I have also seen most admirable results from operation. I

can recall one case where an old man of 70 fell headlong from a cart, suffering a depressed fracture of the skull. He was treated on the expectant plan, and did very well. However, I have not myself had sufficient experience to decide as to the merits of the operative and expectant methods.

Mr. MORGAN: The rule laid down in these cases by POTTS is: "In punctured wounds trephine; but, where there is a large area of bone involved, wait for the development of symptoms."

Dr. ARNISON: I too, I must say, was surprised to hear the dictum laid down by Dr. HUME. I have treated many of these cases which have done perfectly well where there has been no operative interference at all. The case has been well stated by Mr. MORGAN, who quotes POTTS' rule, and it might be modified to read that where you have a fracture of such a nature as to lead you to suspect that there are spicula of bone pressing upon the brain, in such a case you are justified in trephining at once.

Dr. HUME: What I did say was that you should trephine in cases of "compound" depressed fractures of the skull, which is a very different thing from a simple depressed fracture. It has been urged that by the operation your have suppuration in an open wound communicating with the brain, but, in a compound depressed fracture, you have exactly the same state of matters, and do you add anything, therefore, to the danger of the patient by removing the fragments of bone? I do not think you do; and I refer you to a classical paper in HOLMES' system of surgery for confirmation of my views.

Dr. DRUMMOND: I should like to point out that, in Dr. BRADLEY'S case, the fracture is anterior to the motor area of the brain. There need be no surprise, therefore, that such an extensive wound should not be followed by paralysis.

Dr. WILLIAMSON: The safest rule to follow, in these cases, is that if one has got good reason to suspect that there is a sharp fragment pressing upon or puncturing the brain, then you should trephine at once. But, where there is a large surface of bone pressing upon the brain, then, I think, there is room to hold two opinions on the method of procedure.

Dr. BRADLEY: I merely showed this case to raise a discussion on a subject which is at present attracting a good deal of attention. In my practice, I have always been very reluctant to operate on young persons, or on those in whom the symptoms were not urgent. I think, on the whole, however, that, confined to punctured wounds, Dr. HUME'S rule is a safe one to follow.

CASE OF BULBAR PARALYSIS.

Dr. WM. ROBERTSON: The case which I here present to you is, I take it, one of bulbar paralysis in an unusually young subject.

Briefly, the history of the case is as follows:—During the first six months of life the mother noticed nothing wrong with the child; at eight months it had some fits. It now refused the breast, and, at the same time, were noticed, more or less, all the symptoms now present. The family history is unimportant, none at least of the hereditary elements mentioned by DUCHENE. The symptoms, all pronounced in character, are:—Inability to close the lips, to protrude the tongue, difficulty in swallowing and in speaking and coughing, and the sense of taste is gone. She cannot masticate properly the food accumulating in the roof of the mouth, and when it moves backwards and forwards, the mass often renders choking imminent, and the child uses her fingers to extricate herself. There is continual dribbling of saliva which, of itself, is diagnostic according to WILK'S. In DUCHENE'S account of the disease in youth, there is no reference to a case displaying all the symptoms of the associated muscular palsy as we have them here. The same author insists upon heredity as a potent factor, and asserts that the disease is rarely met with before five years of age, to be followed in a year or two by atrophic phenomena in other parts. This case has now been clearly in existence for seven years, and yet, in every other part, the child is normally nourished. I do not refer in detail to all the symptoms. Speech, for example, is reduced to a mere grunt; the muscles involved in the parlysis respond to galvanism, but this part I have not yet fully investigated; the discs are normal and the eyes hypermetropic; the thoracic and abdominal regions are healthy. I have not been able to make a laryngoscopic examination on account of the great hypertrophy of the tonsils and the paralysis of the soft palate. Intelligence and hearing are unaffected.

Dr. OLIVER: The frightened condition of the child prevents us from exhibiting many of the symptoms of bulbar paralysis; but, from those which can be elicited, I agree with Dr. ROBERTSON'S diagnosis, and, as he says, the case is one of very great interest, in view of the extreme youth of the patient at the onset of the disease.

TREATMENT OF VARICOSE VEINS.

Dr. ARNISON:—I show this man to illustrate the treatment of varicose veins by intra venous medication. This method of treatment was mentioned some months ago by an Indian surgeon, and I have adopted it in this case with marked success. The procedure is this. The part of the vein to be operated upon is first selected and isolated by two pins, round each of which a figure of eight thread cuts off the circulation. Ten minims of carbolic acid are now injected, with a syringe, into the isolated portion of vein, and the pins are left long enough in position, say 24 hours, for a firm hard clot to form and occlude the circulation

ELEPHANTIASIS OF LEG.

of the vessel. There never was the least unpleasant symptom in this case, and you can feel the cord-like structure which has replaced the varicose vessel.

Dr. Morgan: Dr. Arnison has certainly obtained a first-class result in this case. I have never tried this method myself, but have had most excellent results from the use of the moxa, obliterating the vein by superficial inflammation.

Dr. Arnison: This case, I believe, is the first operated on by this method in the North of England, but I do not think it will be the last.

CASE OF ELEPHANTIASIS OF LEG.

Dr. Drinkwater: Wm. S., æt 21, a glassmaker, is suffering from elephantiasis arabium, or Barbadoes leg, affecting the left leg. He is an Englishman, and he first came under my care a few months ago, suffering from an inflammatory attack in the diseased limb—such an attack as is characteristic of this disease. But this case differs from the generality in that it did not begin immediately after birth. The mother says the left leg was very much thicker than the right when he was born. The greater part of the enlargement, however, has occurred during the last two years. The characteristic tubercles are confined to the leg below the knee, though the thigh is also involved in the diseased process. The circumference round the middle of the thigh is 27 inches, and round the thickest part of the leg it is $34\frac{1}{2}$ inches. What treatment should be adopted in such a case? *Amputation* has been performed, but this too often proved fatal. *Ligature of the femoral artery* was first performed by Carnochan, in 1851, and Wernher has collected the results of 32 thus treated, with the following results:—

Death occurred in	3
Relapse	10
Gangrene	2
Ultimate result unknown	5
Satisfactory result	12

Piffard describes this mode of treatment as an "unphilosophical procedure." If, as some say, the swelling depends not on increased supply of blood but on resistance to the outflow, one can scarcely see how cutting off the arterial supply in this way can be of any lasting benefit. *Compression with a cotton roller bandage* has been used by Hebra, and *elastic compression* by Vidal. This latter is the treatment I wish to adopt in this case; and my reason for exhibiting him to the Society at the present time is that he may be seen before the treatment is begun, and then again afterwards, and what improvement, if any has occurred, may be observed. This treatment seems to have given the best results so far.

Dr. Gowans: I saw two such cases as this in the practice of Prof. Buchanan, of Glasgow. Both these cases were treated by ligature, and one did well. In the other case erysipelas set in, and the man died. I should like to know from Dr. Drinkwater what were the early symptoms in this case.

Dr. Murphy: The subject of elephantiasis is interesting from two points, ætiology and treatment; and, in regard to the ætiology, I think that Manson's theory of the filaria sanguinis as the cause of the hypertrophy is the most generally accepted. A marked feature in all these cases is the repeated inflammatory attacks. I have asked this man, and he says that nearly every month he has had an attack of shivering, followed by a sharp feverish condition. Of two cases which I have seen treated by ligature of the femoral, one which occurred in the practice of Ball, of Dublin, was very successful. I myself intended, this evening, to show the case of an Englishman, the subject of elephantiasis of the scrotum. I, however, had not time to hunt the patient up, but the photograph which I pass round will convey a good idea of the condition in his case.

Dr. Drinkwater: Up till very recently my patient has had no inflammatory attacks, though quite lately he has had periodical shivering fits, though these were followed by a comparatively mild febrile condition. I have not yet had an opportunity of carefully examining the condition of his blood.

SARCOMA OF NECK.

Dr. Drinkwater: Paul M., æt 55 years, is a cement manufacturer. Has hitherto enjoyed very good health. In August, 1886, he first noticed a lump at the side of the neck immediately below the angle of the jaw. It was thought to be an enlarged gland. On the 28th, there was a distinct feeling of fluctuation; and, when an exploring needle was introduced into the tumour, pus escaped along the groove, and an abscess was diagnosed. On the 29th, an incision was made with a bistoury, and blood escaped, with only a little pus. I did not see him again until October 11th. In the meantime, he had been treated by a cancer quack, who undertook to remove the growth "without an operation." It had increased greatly in size since August. I now advised him to have it removed by operation. This was done on the 15th of the same month. Six ounces of pus was removed by the aspirator—it was found to be superficial to the tumour. Enucleation was effected readily enough at most places, but the greatest care was necessary to detach it from the sheath of the carotid vessels to which it was attached. It invaded the substance of the masseter muscle, and passed deep down towards the carotid canal in company with the vessels, and, in both these places, some of the new growth was, of necessity, left behind. It

was also attached to the inferior maxilla, and, when removed, the bone was left bare and very rough for an inch in length. A separate lymphatic gland was involved in the disease and removed. Chloride of zinc solution was applied to raw surface after removal of tumour to arrest hæmorrhage. A drainage tube was introduced, and wound closed by silk sutures. The operation lasted two hours. The wound healed by first intention, and the sutures and tube were removed on the tenth day, and he was able to walk out of doors on the fifteenth day after the operation. The tumour is a spindle-celled sarcoma.

CONGENITAL ABSENCE OF IRIS.

Dr. Lightfoot: I have brought here a lad suffering from congenital absence of the iris in both eyes, and he has, in addition, double upward dislocation of the lenses. He is an inmate of the Blind Asylum, and can now only distinguish between light and darkness. I have tried him with convex glasses with diaphragms, but they did him no good, and, in my opinion, the case is irremediable.

SUPRA-PUBIC LITHOTOMY.

Mr. Page: Now that supra-pubic lithotomy is again upon its trial, I am induced, Sir, to bring this example of a successful case before the notice of the Society. It is the third case of stone in the bladder operated upon in the Infirmary by the high operation within the last few months, both the other cases having already been reported by Dr. Hume. This lad is 14 years of age, and the stone is, as you see, by no means large, so that I have no doubt lateral lithotomy would have been a successful operation. Garson's or Petersen's bag was used The bladder was easily reached and the stone extracted. The wound in the bladder was not sutured. A drainage tube was introduced into the bladder through the wound. The case has done fairly well. The operative advantages of supra-pubic over lateral lithotomy are, I think, sufficiently obvious. The bladder is, undoubtedly, more easily reached, and the risk of wounding important structures is avoided by the high operation. But we have to look to other considerations besides facility of operation, and it must not be forgotten that Chiselden abandoned the high operation on account of its fatality. I should much like to know from what cause Chiselden's supra-pubic cases died. I suspect blood-poisoning was the cause of death, and I should expect more cases of death from blood-poisoning after the high than after either of the low operations. The objection to the high operation seems to me to be the difficulty of thoroughly draining the wound. Discharge will find its way into the bladder, necessitating frequent irrigation of the bladder. The difficulty of drainage has been increased by

the use of Garson's bag. When the bag is removed from the rectum the bladder sinks again into the pelvis, and the wound in the skin does not correspond to that in the bladder, hence the flow of urine has not nearly so direct an exit. There is a tendency for it to run into the cellular tissue. If suture of the bladder could secure union by the first intention, as a rule, then I should prefer the high to any other method of performing lithotomy. I am aware union by the first intention of both an intra and extra peritoneal wound of the bladder has been obtained, but looking at the difficulty of suturing the bladder through the ordinary supra-pubic incision, I should fear primary union will be found in practice exceptional, however, time will show. I believe the supra-pubic as a substitute for the lateral operation will be again abandoned, if it be found discharges from the wound can not be prevented from finding their way into the bladder, and abandoned for the same reason, viz., the greater mortality of the operation as compared with these from lateral lithotomy. I do not think much, if anything, will be gained from antiseptic surgery unless immediate union of the bladder incision can be secured.

Mr. Morgan: Mr. Page is certainly to be congratulated upon the result of this case of his. But, with regard to this revived operation of supra-pubic lithotomy, it seems to me to be a pity to leave what I look upon as a perfectly safe operation for what I may be allowed to call an experiment, such as this is. In cases where one has to deal with a very large stone, or where the patient is very old, supra-pubic lithotomy may be of service; but, though Mr. Page is to be congratulated on the result he has here obtained, the example is not one I should be inclined to follow.

Dr. Hume: I can endorse what Mr. Page has said about the difficulty of draining these cases, but it is a pity that, with such a subject, he did not in this case go for primary union. It is only in young cases that one can obtain primary union, and then the supra-pubic method becomes a much more brilliant operation than lateral lithotomy. In my cases, I do not think the pus tended to bag, nor was there any tendency to infiltration. However, there is one point of importance in regard to the supra-pubic method which I would draw attention to, and that is that the mortality has been absolutely *nil* since its revival up till now.

Mr. Page: I was led to adopt this operation by reading a paper by Mr. Cadge. He says, however, that in no case whatever should one obtain primary union of the bladder. I shall not give up the high operation. I shall give it a fair trial, and, in the next case I have, I shall endeavour to secure primary union by suturing the bladder. It is a very difficult thing to do, but it has been done, aud can be done again.

CASE OF GASTROSTOMY.

Mr. Page: This man, aged 64 years, was admitted into the Newcastle-upon-Tyne Infirmary a few weeks ago, under the care of my colleague, Dr. Limont, suffering from stricture of the gullet, of a year's duration, which there is every reason to believe is due to malignant disease. He suffered a good deal from hunger, and, indeed, complained of no other inconvenience. To be starved to death slowly is a terrible prospect; and it seems to me an operation which affords even a doomed patient the opportunity of escaping the pangs of hunger, and alleviating, to a considerable extent, the mental distress which accompanies such a condition, is not only warrantable but imperative. The only question in my mind is, does gastrostomy fulfil these objects? Well, I have now performed the operation for malignant disease a good many times, and in every case where the patient has survived the operation for any time, he has expressed himself as being more comfortable after than before the fistula was made. When the operation was performed, it has certainly made life more endurable. It may often be a matter of great consequence to preserve life for a few weeks, and where in the process of doing so you add to the patient's comfort—physical and mental comfort—a good deal has been gained, sufficient, certainly, to warrant the means employed.

CASES OF UNUNITED FRACTURE.

Dr. Gowans: These two cases are cases of ununited fracture of the humerus. This man had his right arm broken by the handle of a crane. After trying various methods it was found impossible to get the two ends to unite, and, ultimately, I had recourse to wiring them together, and you now see here the first-rate result obtained. It is not a very sightly arm perhaps, but it is one as useful to the patient as ever it was.

This woman, my second case, came to me with an ununited fracture of the right humerus. In her case I operated at once and wired the end, with a remarkably good result, as you see. In both cases the wires were left in.

Dr. Arnison: Might I ask how Dr. Gowans fastened the wires, and how did he dispose of the ends? Did he hammer them down? I had a case which I treated by wiring, but after a time, when union had taken place, I cut down and removed the wires.

Dr. Gowans: I twisted the ends of the wires and hammered them down.

MALPOSITION OF THE HEART.

Dr. Gowans: This case, which I bring before you, is one of physiological rather than pathologieal significance, I take it, at least, the victim suffers no inconvenience whatever from the

malposition of his heart, which occupies the same position in the right side of the chest which it ought to do in the left. In this case it is of interest to observe that all the other organs are normal in position, as, in these cases, we are generally led to expect that most of the organs are similarly transposed. This man is an insurance agent, a life not without worry, and he travels 20 to 25 miles a day without fatigue.

Dr. DRINKWATER: I have seen one case of displaced heart. It was high up on the left side, just under the clavicle, and occurred in a lady, a chronic invalid.

Dr. PHILIPSON: Transpositions of the viscera are not unusual, but there is here the interesting fact that there is no displacement of the liver or spleen, which are in their normal position. In some cases of pleurisy, especially pleurisy of the righ side, it is not uncommon to find the position of the heart altered as a consequence.

Dr. MEARS: The septum of the heart is developed with a twist to the left, and, in this case, the development may have been reversed, and such an occurrence would lead to the malposition present.

UTERINE TUMOUR.

Dr. CRISP: Mrs. F. came under treatment in October, 1886, with a two-and-a-half years' history of pelvic and back pain and profuse vaginal hæmorrhage, lasting 14 or 16 days in the month. She had had three children, and an abortion three years ago. On examination, the uterus was found much enlarged, the cervix in an extreme condition of hyperplasia, feeling to the finger like a piece of cartilage, lacerated on either side, and the lips granular, and very much everted. The sound passed two-and-a-half inches, and then met with an obstruction. On this being overcome, it passed up to five inches. The uterus was freely moveable, softish, and felt about the size of a small cocoa nut. She was treated by rest and hot douche and ergot, and improved so far that the menstrual periods lasted only eight days, and the cervix became much softer, and lost its granular condition.

On January 13th, a small sized tent was got, with some difficulty, past the inner os, and left there till the 15th, when two large sized tents were passed. On the 16th, Dr. JAS. DRUMMOND saw her with me, and, under chloroform, we passed, with considerable difficulty, the smallest sized STEEL'S bag. This was left in until the afternoon. We then introduced the largest sized bag, but the uterus contracted so firmly on it that it burst. Elastic pressure seemed of so little use that four large sized tents were left in all night. On the morning of the 17th, the tents were so firmly grasped that we left them until the afternoon. In the afternoon, HEGAR'S dilators were used from No. 16 up to full size,

and we were able to pass up the finger into the cavity of the uterus, which was found to be occupied by a soft tumour, but contraction of the inner os occurred so rapidly that it was impossible to reach the attachment of the growth. She was put fully under morphia and chloroform, and the large sized bag left in. On the morning of the 18th, so little effect had been produced in the condition of the inner band, she was put fully under the influence of nitrite of amyl, and elastic pressure continued. On the afternoon of the same day Dr. OLIVER saw her, she was given a full dose of morphia hypodermically, and put deeply under chloroform. Several of HEGAR'S dilators were introduced at once, and this acted so that the tips of four fingers were got in. Manual dilatation was kept up by Drs. OLIVER, DRUMMOND, and myself, for some time, but the uterine spasm was, at times, so intense, that the fingers were literally squeezed out of the cavity. After persistently trying for some time, two fingers were able to reach the attachment of the tumour posteriorly, but it was quite impossible to get round the attachment.

Division of the inner constructing band was not thought advisable, as it was fully $2\frac{1}{2}$ inches from the outer os, and it would have very much increased the danger of sepsis.

The patient was so much exhausted, that it was not thought advisable to attempt any further measures. She passed a good night, and, on the morning of the next day, was in a fairly good condition; but, in the afternoon, intense uterine tenesmus set in, which was only partially relieved by morphia, and she died of exhaustion on the following day.

P.M. NOTES:—Abdomen slightly distended. On section, the colon and small intestines gaped through the opening, were distended, and contained a small amount of solid matter in former. On displacing them, a tumour, greyish pink in colour, the size of a child's head, occupied the lower third in middle line. It was smooth, and the peritoneum looked healthy. Fallopian tube on left side found to be healthy. In the broad ligament was a cyst about the size of a pigeon's egg, and attached to which, by a small peduncle, was another the size of a filbert. Left ovary felt normal; at its lowest border it was somewhat discoloured. Right Fallopian tube was somewhat below and behind as an irregular dark coloured mass, partly cystic, partly solid, to the feeling. The solid part was that which was most discoloured. The Fallopian tube itself felt healthy. On removing the uterus entire, the cervix was gaping, and through it was protruding a soft mass of a chocolate colour. The uterus measured $5\frac{1}{2}$ inches in length. On slitting it open on its anterior wall, the thickness of which varied from $\frac{1}{4}$ to 1 inch, a soft elongated mass was brought into view, attached to the whole of the fundus by firm adhesions, the area of attachment being about 3 inches square. The tumour itself was soft

and cystic at the lower part; at the upper part it was firm and consistent. The mucous membrane throughout was of a brown snuff colour. Prominent rügæ were found on the inner wall of the uterus.

Dr. Oliver: When I saw the patient from whom this uterus with tumour was taken, the process of dilating the cervix had already been carried on for several days. And, when I was told by Dr. Crisp of the unsatisfactory nature of the dilatation, my first impression was that we had to do with one of those irritable cervices (my experience of which I narrated to the members of this Society last Session) which, after a time, fails to dilate in spite of every effort made. Either spasm of a very severe character is induced, or a thickened and œdematous cervix can be felt, as the result of the irritation caused by the tents. My experience of such cases is not hopeful. When I saw Dr. Crisp's case, the largest dilator was in situ—a modified Barnes' bag. The patient was under the influence of chloroform, and, on withdrawing the bag, I tried to pass my two fingers into the uterus. For a few moments nothing prevented me doing this, and I came at once upon the lower border of the tumour. Immediately, however, the most intense spasm of the lowest segment of the uterus and the inner "os" was set up, and it was simply impossible either to pass the fingers further into the uterus, or even keep them at the level they had reached. The patient was already worn out by the repeated attempts at dilatation, performed latterly under the influence of chloroform, that we consulted as to the advisability of again attempting dilatation or leaving her alone. It was perfectly clear, from the amount of exhaustion present, that, if left alone, she would die; and, as removal of the ovaries was out of the question, we considered that it was our duty to again give dilatation a fair trial—another trial because it was clear to all of us that it was simply spasm that prevented our completely reaching the tumour—a condition which, in a patient under the influence of chloroform and morphia, might be overcome, and that it was not due to a thickened, unyielding cervix, that would not and could not dilate. Accordingly, after a warm douche, we inserted a few of Hegar's dilators, and, on their removal, we could get three fingers into the uterus, but only for a few moments could they be kept there owing to spasm. A few more of Hegar's dilators were added, and, shortly after, we could get four fingers well within the inner "os," and, later on, the tips of five fingers. No sooner, however, did any of those who were present get their fingers into the uterus than contractions of that organ were set up, which made further ingress of fingers or their stoppage there a matter of complete impossibility. It was quite evident that the irregular spasmodic contractions of the uterus would not yield, and as the spasms were not only of the inner "os" but of the lower segment of the uterus as well,

and, therefore, any good to be got by incision was perfectly out of the question, we decided to abandon the operation. On the following day, patient was in great pain, pains, however, which it could be felt were clearly due to strong contractions on the part of the uterus, and evidently not dependent upon any inflammatory mischief outside the uterus. The patient died the day after this from exhaustion and pain, and, on the following afternoon, I assisted Drs. Crisp and James Drummond at the *post-mortem*. Dr. Crisp has done well in bringing this case before the Society. Now and again one meets with a uterus containing a tumour, and, do what you will, the cervix will not dilate. This had already happened in one of my cases, and there with a fatal result, without any interference on our part with the tumour. The same thing is recorded by Marion Sims as having occurred in his own practice, although the dilatation was stopped, repeated in a fortnight, and again stopped, to be again repeated and stopped, and in his, as in both of my cases, where the tumour was a soft fibromyoma, with a pretty extensive attachment to the uterus. On microscopical examination, the tumour is found to contain a good deal of mucous, fibrous and unstriped muscular tissue.

PERFORATION OF APPENDIX VERMIFORMIS.

Dr. Oliver: This specimen, Mr. President, was removed from the body of a young lady, aged 17, whom I saw with Dr. Crisp on the 17th February, with the view of giving an opinion as to the advisability of opening the abdomen for the relief of symptoms that had been urgent, and were still such as to give rise to a good deal of anxiety. The history of the case, kindly supplied to me by Dr. Crisp, is briefly this:—Has always been more or less constipated, is of strumous constitution, had her inguinal and femoral glands of both sides removed for strumous disease some time ago; has latterly been under treatment for enlarged cervical glands. On Sunday, 13th February, was quite well, bowels were moved, though constipated. Monday, 14th, complained of general uneasiness, slight feverishness, and was indisposed generally. In the evening complained of pain in epigaster, which increased in severity till 4 a.m. on Tuesday morning, when she had two doses of castor oil, vomiting after each; no tenesmus. Dr. Crisp now saw her for the first time in this illness: pulse was 128, temperature 99·2 F. There was a feeling of increased resistance in the iliac region, with great pain on pressure. Wednesday, patient asked for a drink of warm water, after which she vomited; [illegible] now more

pulse 136, temperature 100°. Soon after this I saw her. She was much freer of pain than she had been, and there was no vomiting. The abdomen was not unduly distended nor painful to the touch, but there was distinct resistance and slight dulness on percussion towards the ileo-cæcal region. Though she expressed herself as feeling very much better, and while on an ordinary superficial examination nothing very serious presented itself, there was still something about the patient that neither Dr. Crisp nor I liked, and which led us to entertain a very grave opinion of her case. We put her under chloroform to examine her more thoroughly. In the ileo-cæcal region we were now able to make out not only dulness and a sense of resistance, but, on percussion, a slight click and succussion sound could be felt and heard. Per vaginam, the uterus felt movable and healthy, but, lying to the left of it, was a hard, round mass the size of a prune, fixed and quite immovable, and which we regarded as an adherent left ovary. From the history of abdominal pain, followed by vomiting and slight constipation, we regarded the case as one of peritonitis; and, from the peculiar click and succussion sound got over the ileo-cæcal region, it was evident that there, at least, were fluid and air, which, we thought, could only be explained, as they were external to the bowel, by a perforation of some portion of intestine. Operation, from the general character of the peritonitis, and the feeble, rapid pulse, we thought was out of the question, so we decided to continue treatment by opium. Towards evening, her temperature rose to 103·8, and pulse to 171. At midnight, she was seen by Drs. Gowans and James Drummond, in conjunction with Dr. Crisp, and, on the morning of the following day, she died.

I assisted Dr. Crisp, on the following day, at the *post-mortem*. There was general peritonitis, bowels distended, and, in the meshes left between the coils, was a quantity of sero-pus. The ileo-cæcal region was the seat of an abscess, in the floor of which was seen the appendix vermiformis, with a round, clean, perforated ulcer on its anterior surface, half-an-inch from the cæcum. A few ounces of very purulent serum occupied this region. There was pelvic peritonitis, the surface of the uterus was covered with a delicate film of lymph and pus, and the left ovary, which was enlarged, was tightly bound by adhesions to pelvic floor and ischium. The case is interesting from the length of time the peritonitis had evidently existed without giving rise to serious symptoms, and from the existence of the click and succussion sound, which led us to suspect perforation. Perforation of the appendix is not a quickly fatal illness, but it is generally followed by indications of a very severe and localized peritonitis rapidly running on to suppuration.

SARCOMA OF KIDNEY.

Dr. Bradley: The girl, from whom this tumour was removed, came under my care about Christmas last. At that time, I found a large swelling in the left hypochondrium, which, as time went on, rapidly increased in size. The patient suffered from repeated attacks of hæmaturia, rapidly emaciated, and soon died. This growth of the left kidney, which I removed *post-mortem*, was submitted to Dr. Drummond, who states that it is a small, round-celled sarcoma, and draws attention to the interesting fact that the malignant growth is entirely surrounded by a layer of unaltered kidney structure.

with which I propose to deal with in this paper. Not should I have felt in any way justified in laying before you the account and results of my experiments, had it not been for the important position this subject occupied in a recent report issued in connection with the Infirmary of this city. To this particular section of the report my attention was first directed by Mr. Redmayne, the House Governor of the Infirmary, and I am indebted to that gentleman for the various samples of beef tea, the results of the analysis of which, and some matters arising out of these results, I propose to speak of this evening.

Chemical Constituents of Dead Muscle.—It will not, I trust, be considered out of place, if I devote a few moments to a consideration of the chemical constituents of dead muscle. These naturally fall into two groups, the inorganic and organic. The inorganic constituents are water and salts; the latter consisting of two groups, one entering into the composition of the solid portion of the muscle, consisting chiefly of potassium phosphate, together with phosphates of calcium, magnesium, and of iron; the second group forming constituents of the liquid portion, and consisting chiefly of common salt.

The amount of water may be taken as varying between 75—78 per cent., and the amount of saline constituents as between 0·8—1·8 per cent.

Organic Constituents of Muscle.—The organic compounds found in muscle are conveniently classified as nitrogenous and non-nitrogenous, the latter being compounds of carbon, hydrogen, and oxygen; the former containing, in addition to these three elementary bodies, the element nitrogen, and, in some cases, sulphur also.

Non-Nitrogenous Constituents.—Of these, the most important in amount is the fat, consisting essentially of the compounds tri-olein, tri-palmitin, and tri-stearin, which are compounds of the acids oleic, palmitic, and stearic, with the alcohol, glycerine, or glycerol. The amount of fat in muscle—freed from fat—varies from 0·5—3·5 per cent. Of the remaining compounds of this group, the next in importance is that variety of lactic acid, known as sarco-lactic acid, the amount of which varies from 0·05—0·07

per cent. It occurs partly in the form of salts, and, in part, as the free acid, to the existence of which, in the free state, the aqueous extract of muscle owes its acid reaction.

Traces of the three fatty acids, butyric, acetic, and formic have been discovered in muscle. And, in certain varieties of muscle, members of the group of carbohydrates, or sugars, have been detected, viz., inosite $C_6H_{12}O_6$, and glycogen $C_6H_{10}O_5$.

The Nitrogenous Constituents may be sub-divided into three classes :—

(1.) The first division may be conveniently styled crystalloids, and, although by no means simple compounds, may be regarded as degradation compounds of more complete bodies. Of these, the most important is creatine ($C_4H_9N_3O_2$) ; the amount of this body varies within the limits 0·07—0·32 per cent., and, although the amount is small, it must be considered as playing a by no means unimportant part in diet, furnishing, as it does, with the other similar compounds, to be mentioned directly, a nerve stimulus, the physiological actions of which appear to be similar to those of the active alkaloid in coffee and tea, viz., thein. In connection with this, I may mention that those varieties of meats highly prized for their sapidity, such as that of the duck, poultry, and rabbit, are amongst those containing the larger amounts of this substance.

Associated with creatine, but in smaller quantities, are the substances—creatinine $C_4H_7N_3O$, sarkine $C_5H_4N_4O$, xanthine $C_5H_4N_4O_2$, carnine $C_7H_8N_4O_3+H_2O$, inosinic acid $C_{10}H_{14}N_4O_{11}$, uric acid $C_5H_4N_4O_3$, and urea $CO(NH_2)_2$.

The second class of nitrogenous compounds are those represented by the connective tissue, which, whilst unaffected by cold water, is, by long continued boiling with water, dissolved, giving a solution which jellies on cooling, even when containing as little as one per cent. of the compound gelatine to which it owes this property. The connective tissue, then, is to be regarded as the gelatine producer, gelatine itself not existing in the tissue, but being formed from the parent substance collagen, the basis of the white fibres of connective tissue. Several other compounds, such as elastine and mucin, etc., are associated with gelatine ; whilst these are insoluble in cold water, they, for the most part, dissolve in hot water, the hot aqueous solutions gelatinising on cooling. These bodies are all amorphous, and in composition and many physical characters resemble, yet are different from, the last and most important of all the nitrogenous compounds contained in muscle, viz., the compounds usually grouped together under the head of *Proteids*, several representatives of which occur in muscle.

Proteids.—These are all amorphous, of low diffusive power, are all insoluble in alcohol and ether, whilst, for the most part,

insoluble in pure water, are soluble in strong acids and alkalies. They are all alike in their behaviour with strong nitric acid, yielding the xantho-proteic acid reaction in giving a red colour with MILLON's reagent, and in yielding precipitates with acetic acid and potassium ferro-cyanide.

In composition, they exhibit a certain resemblance containing the elements carbon, hydrogen, nitrogen, oxygen, and sulphur, in amounts varying within comparatively narrow limits. The classification generally adopted is based upon the varying solubilities of these bodies in water and saline solutions.

Group I.—Those soluble in pure water, forming the group of native albumens, *e.g.*, serum and egg albumin.

Group II.—The globulins; insoluble in pure water, but soluble in dilute neutral salt solutions, such as common salt, *e.g.*, vitellin, myosin, fibrinogen, and paraglobulin.

Group III.—Fibrin; insoluble in water and weak solutions of salt.

Group IV.—Derived albumins, viz., acid albumins, formed by dilute acids in solutions of proteids, or strong acids, on the solid proteids; and alkali albumins, formed, in a similar manner, by the action of solutions of the caustic alkalies upon the proteids.

Group V.—Coagulated albumins; insoluble in water, also in dilute acids and alkalies.

Group VI.—Lardacein.

To these we must also add the *peptones*, the bodies resulting from the treatment of proteids with pepsin and dilute hydrochloric acid, which are distinguished from the proteids by their easy solubility in water, and the easy diffusibility through animal membranes, the non-coagulation of their solution on heating, and their non-precipitation by salts, acids, or alkalies.

The proteids are represented in muscle by the muscle fibre and myosin, insoluble in water, a representative of Group II., and by the soluble albumin, a representative of Group I., and contained in muscle serum, which represents, as you are aware, the liquid left after the coagulation of the muscle plasma of the living muscle. To this muscle serum, or "juice of the flesh," attention must be chiefly directed in considering the preparation of "beef tea," containing, as it does, the soluble non-nitrogenous compounds already mentioned, the nitrogenous crystalline compounds, and, it would appear, three soluble proteids, usually grouped together as albumin, viz., a proteid coagulating at 78°C, which is not myosin; an alkali albumin, viz., a potassium albuminate; and, finally, an albumen exceeding either of the other two in amount, viz., a body resembling, if not identical with, serum albumin.

There remains to be mentioned one substance further, which will complete the account of the chemical constituents of muscle, viz., the hæmoglobin, to which muscle owes its colour, and to which the red colour of the cold aqueous infusion of muscle is largely due. Some idea of the proximate composition of the juice of flesh is afforded by the following analysis of the liquid obtained by the application of hydraulic pressure to finely-minced and fat-freed muscle, a sample of which is stated by KONIG, in his *Menschlichen Nahrungs und Genussmittel*, to contain:—Water, 92·84; albumin, 3·86; gelatine, 1·96; sugar, 0·3; ash, 1·04.

When finely-minced muscle is treated with cold water, the substances dissolved are the albumin and hæmoglobin, the nitrogenous crystalloids or muscle bases, the non-nitrogenous acids, and the salts. When treated with boiling water, the albumen is coagulated and rendered insoluble, the connective tissue is converted into gelatine; at the same time, the fat is liquefied, and this, in part, finds its way into the infusion.

These facts sufficiently explain the differences in composition between beef teas, prepared by the cold extraction and by the hot extraction methods; the former containing the larger amount of albumin, the latter containing, associated with a smaller amount of albumin, a considerable proportion of gelatine, together with the other nitrogenous and non-nitrogenous compounds already mentioned. Now, although these facts are well recognised, and have been regarded as fully established since LIEBIG's investigations on the Juice of Flesh, which were first published in the *Annalen der Chemie und Pharmacie*, and have since appeared in an English form in GREGORY's translation of LIEBIG's Animal Chemistry (1847), as also in LIEBIG's Familiar Letters in Chemistry, and in various forms in chemical text books, and others dealing with the chemistry of food. Despite this, it has not been possible to meet with such a series of investigations as would enable one to form some approximate idea of the proportion of the various constituents extracted from beef in the making of beef tea. In consequence, I have made such a series of analyses as would enable one to arrive at such a conclusion. Although these investigations have revealed nothing more than one might have anticipated, still, by giving these results a numerical basis, they serve to convey information of a more tangible character than is conveyed in such general statements, and information which, I trust, may not be without some service.

The analyses I have made are entirely proximate, *i.e.*, I have determined the amounts of the various proximate constituents of a beef tea, viz., albumin and hæmoglobin, gelatine and extractives insoluble in alcohol, extractives soluble in alcohol, fats, and salts. By extractives, I have grouped together those non-nitrogenous compounds, and nitrogenous crystalloid compounds, such as kreatine, of which I have already given a brief account.

The results of the analyses are expressed in grains per pint, a method which I have adopted, seeing that this system of weights and measures is still in common use; and I trust I shall not be considered extremely radical if I express a wish that the medical profession will soon abandon so cumbersome a method for the infinitely more simple units of the metrical system. This would appear all the more necessary seeing that, to interpret the analysis quoted in the Infirmary report, the ounce must be taken as 480 grains, which implies the buying and selling of meat by troy instead of by avoirdupois weight, as is usual.

Respecting the preparations of beef tea analysed, these were all made in the kitchen of the Infirmary, under the direction of Mr. REDMAYNE, to whose kindness and assistance I am greatly indebted. I preferred this mode of obtaining samples for analysis, as, in that way, I was enabled to arrive at results which will approximate more nearly to those of everyday experience than would be obtainable from the analysis of beef teas made in the laboratory, under conditions which are not likely to obtain in the kitchen.

The results of the analyses are contained in the following table:—

GRAINS PER PINT.

	I.	II.	III.	IV.	V.	
					a.	*b.*
Albumin	43·7	56	39·3	67·8	99·3	119·5
Gelatine and Extractives insoluble in Alcohol	78·29	49·17	21·3	33·78	5·8	12·6
Extractives soluble in Alcohol	75·7	84·7	64·4	100·9	69·5	65·4
Fat	(147·9)	1·75	3·5	56·3	6	10·8
Salts	31·6	31·5	6·6	35·08	15·3	19·9
Total Solids	377·19	223·12	135·1	293·86	195·9	228·5

Samples I. and II. were taken from batches of tea made according to the recipe in use at the Infirmary for some years past. In preparing the same, 19lbs. of beef were used, and allowed to remain for some hours in contact with 20 pints of cold water. After soaking in this way, the beef and liquid together were raised gradually to near boiling. The exceptional amount of fat in No. I. is explained by the fact that the fat had not been

removed before it was handed over for analysis. The numbers quoted above represent, in No. II., the mean of two complete analyses, and the amount of albumen in No. I. is also based upon the results of two determinations.

Sample III.—This was taken from a make of tea in which the proportion of meat to water was 10oz. of the former to one pint of the latter. The extraction was made in the cold, and the cold aqueous extract strained off from the meat, before cooking it, after which water was added, so that each pint of tea represented 10oz. of meat. In this way a tea was obtained of a brownish colour, tasteless, and insipid, and holding in suspension a light floculent precipitate of coagulated albumin.

Sample IV. represents a preparation obtained by a process combining the cold and hot extraction methods. In making this, a pound of finely-minced beef was treated with half-a-pint of cold water, and, after remaining in contact with the beef for some twelve hours, half-a-pint of liquor was strained off, and then cooked. To the meat was next added a second half-pint of water, and allowed to stand with the meat for some three hours, and the whole gradually raised to near boiling; the liquor then strained off, and added to the first extract, and the whole made up to a pint, so that the pint of tea represented one pound of beef. The tea obtained in this manner is palatable and agreeable.

Sample V. is another representative of teas made by extraction with cold water; but, inasmuch as only small quantities of materials were used, viz., the amounts specified below, the results obtained represent such as would be attained in preparing a small quantity, and not such as would result in working with larger amounts. The method of preparation was as follows: 20oz. of minced beef were placed in 20oz. of cold water, and allowed to remain in contact for 12 hours, the liquor drawn off, and 20oz. of water added, and four drops of hydrochloric acid, and then allowed to stand for nine hours. The liquor then drawn off was added to the first, and the insoluble mass washed with as much water as made up the resultant liquor to 40oz., so that each pint of tea represents 10oz. of beef. Under (*a*) are given the results of the analysis of this tea, which was of a reddish, opalescent, turbid liquid, almost devoid of taste. Under (*b*) are stated the results of the analysis of portion of this tea after it had been raised to boiling, and kept at that temperature for 15 minutes. As no water was added to replace that evaporated in the cooking, the results appear somewhat higher than in the first. The insoluble matter left after the above treatment was stewed with about a pint-and-a-half of water for some time, and gave a liquor which, on cooling, set to a limpid jelly.

Comparative Extraction.—In order to institute a comparison with the material used, although I had been able, after diligent search, to find analyses of beef, made in such a manner as to enable me to arrive at some idea of the percentage of albumin, gelatine and extractive, and salts obtained from the beef in these different cases; still, to make the matter more certain, I submitted to analysis two samples of beef, and taken from batches of meat prepared for the purpose of making beef tea at the Infirmary. One of these samples was taken from the batch used in the making of the tea from which Sample V. was taken. Two sets of comparisons are instituted, one with the results of these nalyses, and one based on a series of averages taken from analyses of various authors: (1) LIEBIG, taken from his Animal Chemistry (1847); (2) *Moleschott*, quoted by PARKE's Hygiene, as representing the average composition of beef, based on various continental analyses (1859); (3) Mène, the mean of the analyses of 16 different cuts of beef taken from the same animal. These samples were obtained from meat exposed in the Paris market, during the years 1873-74. With respect to these results of Mène, there is one notable point, and that is the large amount of gelatinous matters, which amounts were arrived at by first removing the fat by extraction with carbon bisulphide, then removing albuminous matter by extraction with cold water, and also extracting fibrine by treatment with dilute hydrochloric acid and ammonia, the residue was then boiled for one hour with water, and the amount of insoluble matter determined. The amount extracted by hot water, representing gelatinous matters, being determined by subtracting the totals obtained by adding together amounts of albuminous matter, fat, and insoluble matter and ash from 100. It will be seen that, by this method of analysis, the amounts of albuminous matter and gelatinous substances must necessarily be higher than can be obtained by extraction with cold water, and subsequent extraction with hot water, the method which I adopted in my analysis.

Liebig's Analysis. (Animal Chemistry; Trans. Gregory, 1847, p. 130.)—1,000 grammes of beef yield, under the most favourable conditions:—

Substances soluble in cold water ...	60	Coagulated Albumin	29·5
		Extractives and Salts	30·5
Substances insoluble in hot water...	170	Soluble in boiling water (gelatine)...	6·00
		Insoluble in hot water	164·00
Fat	20		
Water	750		

Mean of Continental Analyses (Moleschott). Parkes' Hygiene, p. 206.

Water	73·4
Soluble Albumin and Hæmatin	2·25
Extractives	1·38
Gelatinous substances	3·3
Insoluble Albuminous substances	15·2
Fat	2·87
Salts	1·6
	100·00

Mène.—*(Compt. rendas*, LXXIX., 396-398, and 529-530 ; also, *Chem. Soc. Journal*, 1874, Abstract 1,110-1,114.

The following represent the mean of the results of the analysis of 16 cwts of beef :—

Albuminous matters	3·54	per cent.
Gelatinous matters	7·37	,,
Salts	1·31	,,

The following numbers represent the means of the analyses of the two samples of beef used at the Infirmary. I only state the amounts of those materials used in making the comparison :—

COMPOSITION OF BEEF USED AT INFIRMARY.

Water	72·69	per cent.
Albumin in cold water extract	2·44	,,
Extractives in cold water extract ...	1·98	,,
* Gelatine, etc., in hot water extract ...	1·49	,,
Salts removed by cold and hot water ...	1·08	,,

Manner of Instituting the Comparison.—To arrive at an idea of the comparative amounts extracted in these different teas, I have taken the mean of the various continental analyses, and calculated from these results, the number of grains of the three constituents—albumin, gelatine and extractives, and salts contained in 1lb., 15$\frac{1}{5}$ozs., and 10ozs. beef respectively, the amounts of beef used in making one pint of these teas. The results of the analyses of the Infirmary beef were similarly treated. Then, putting each of these various constituents down as 100, and taking the results of analysis of each sample, a simple calculation gives the percentage of albumin, of gelatine and extractives, and

* This amount is certainly low, as the analyses showed that the amount of gelatine obtained varies with the length of time the meat is boiled with water.

of salts extracted. Thus, for example, the numbers for No. IV. were arrived at in the following manner: 1lb. of beef was used to the pint in this case; the average of the continental analyses gives a beef containing 203·9 grains of albumin, 329 grains of gelatine and extractives, and 105·2 grains of salt in 1lb. The beef tea was found to contain 67·8 grains of albumin per pint, where 203·9 grains are possible, or, taking the possible extraction as 100, an extraction of 33·2 per cent. has been effected. This will, I think, sufficiently explain the manner in which the other numbers contained in the table, headed "comparative extraction" have been obtained.

The quantities of beef and water used being as follows:—

For I. and II.—	0·95 lb.,	or	15$\frac{1}{5}$ oz.,	to	1 pint,	or	8,750	grains of water.
,, III.—	0·625 ,,		10 ,,		1 ,,		,,	,,
,, V.—	1·25 ,,		20 ,,		1 ,,		,,	,,
,, IV.—	1 ,,		16 ,,		1 ,,		,,	,,

ONE POUND OF BEEF GIVES IN GRAINS:—

	Liebig.	Moleschott	Mène.	Average.	Infirmary Beef.
Albumin	206·5	157·5	247·8	203·9	170·8
Gelatine and Extractives ...	143·5	327·6	515·9	329·	242·9
Salts	(112)	(112)	91·7	105·2	75·6
Total soluble in cold and hot water	462	597·1	855·4	638·1	489·3

15$\frac{1}{5}$ OZ. OF BEEF GIVE:—

	Liebig.	Moleschott	Mène.	Average.	Infirmary Beef.
Albumin	196	149	234	193	162
Gelatine and Extractives ...	135	311	490	312	230·7
Salts	106	106	87	99·6	71
Total soluble in cold and hot water	437	566	811	604·6	463·7

10 OZ. OF BEEF GIVE:—

	Liebig.	Moleschott	Mène.	Average.	Infirmary Beef.
Albumin	129	98·4	154	127	106
Gelatine and Extractives ...	89·6	204	322	205	151
Salts	70	70	57·3	65	46
Total soluble in cold and hot water	288·6	372·4	533·3	397	303

COMPARATIVE EXTRACTION.

	I	II.	III.		IV.		V.	Continental Analyses.
Albumin	22·64	29·1	33·5		33·2		78·2	100
Gelatine and Extractives	49·3	42·89	41·3	33·8	41	39	36·7	100
Salts	31·7	31·6	10·1		33·3		23·3	100
								Beef used in Infirmary
Albumin	27·6	37	34·5		39·7		93·7	100
Gelatine and Extractives	66·7	57·9	52	41	55·4	53	49·9	100
Salts	44	44	13		46		39·	100

The ordinary make of beef tea, represented by I. and II., is seen to contain the smallest amount of albumin, yet, on the average, 25 per cent. of the possible, between 42 and 49 per cent. of the gelatine and extractives of the meat, and 31 per cent. of the salts.

The samples III. and IV. are examples of beef tea made by extraction in the cold, as recommended in the Report of the Infirmary, and these results show that the albumin extracted is 33 per cent. of that contained in the meat, whilst from 33·8-39 per cent. of the gelatine, extractives and salts have been removed. The latter are taken together in this case, as in the analysis of No. III., a portion of the salts are estimated with the gelatine and extractives. The extractives and salts are seen to be higher

in No. IV. than in No. III., which is easily explained, seeing that in its preparation the meat was cooked with water after the extraction by cold water had been completed.

Sample V. calls for special attention, inasmuch as it is remarkable for the high percentage of albumin removed from the meat, which is not difficult of explanation, remembering the manner in which the beef tea was made. In the first place, a small amount of beef was used, viz., that mentioned in the description of its preparation; further, it was washed twice with cold water, and, in fact, the conditions were such as are more likely to obtain in the laboratory, than when working with large bulks of materials, as is necessary in such institutions as Infirmaries. In such cases we all know it becomes impossible to attain to anything like a theoretical result. The percentage of gelatine and extractives removed from the meat in this case appear abnormally low, considering the percentage of albumin removed. The cause of this is to be found in the fact that they are expressed in terms of the amounts extracted by cold and hot water, a comparison scarcely justifiable. If the amount of these substances removed from the meat by cold water be taken as the standard of comparison, then the percentage of extractives is about equal to that of the albumin removed, viz., 93 per cent.

The comparison with the beef used at the Infirmary shows the extraction to be higher than when the comparison is made with the results of the continental analyses. The cause of this is to be found in the fact that, according to my analyses, the composition of the beef actually used is somewhat below the average, deduced from the numbers of the continental authorities; yet, if Liebig and Moleschott's numbers were alone considered, the beef used at the Infirmary would stand about midway between the two.

If one may venture on any general conclusions from so small a number of cases, it will be seen, by comparing the composition of the teas I. and II. with III. and IV., that, as far as concerns the extraction of the soluble albumin from beef, the method of extraction by cold water, as recommended in the Infirmary Report, does not produce results so strikingly different from those obtained by the method previously adopted in the Infirmary, when worked under similar conditions

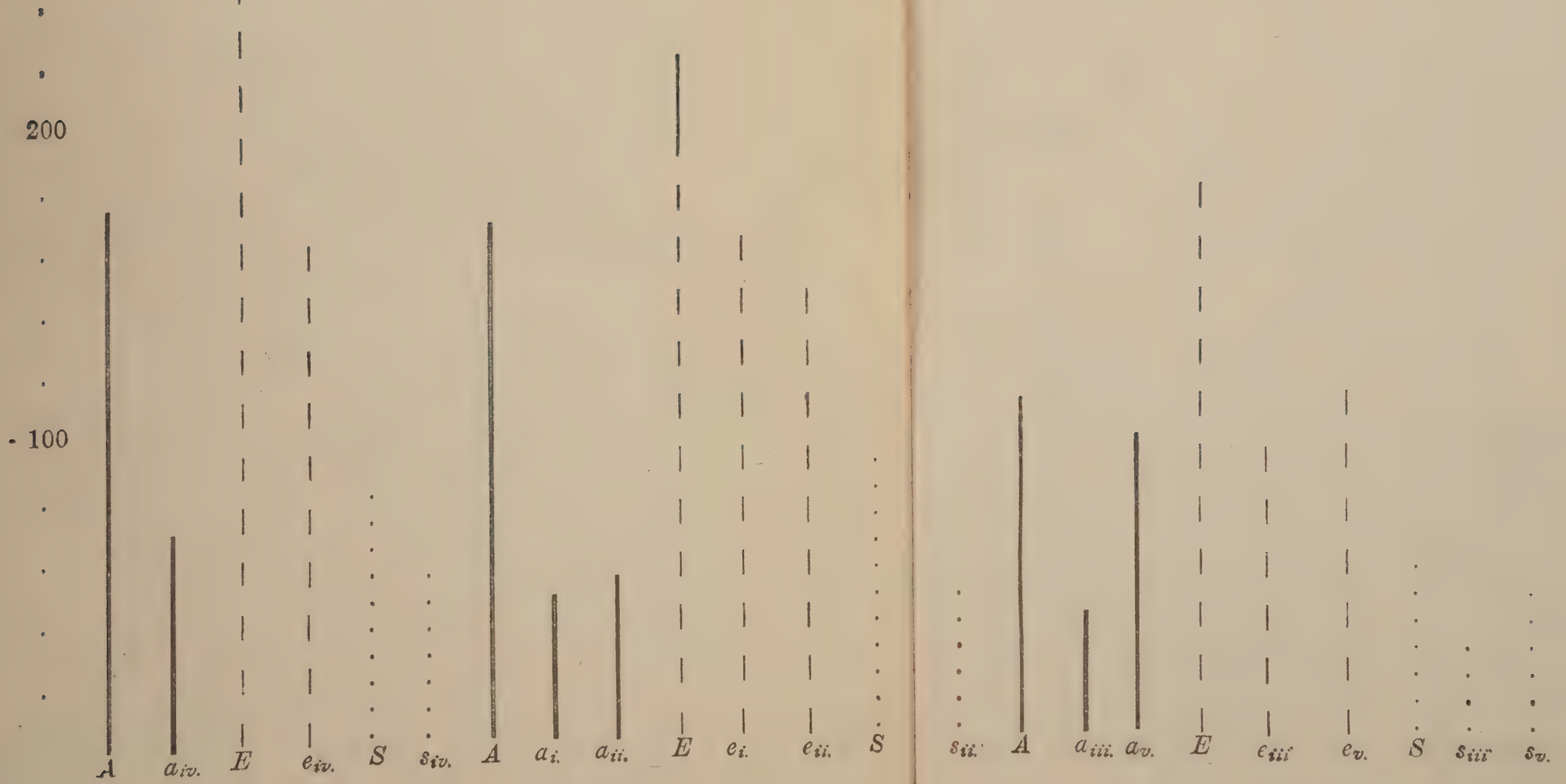
The composition of sample V. shows that, to obtain a complete extraction of the albumin from meat, the temperature of the water is not the only factor, but also the manipulation and the amount of material manipulated are important considerations. It would appear that, to obtain an efficient extraction on a large scale, mechanical appliances of some form are required, so that the meat is constantly brought into intimate contact with the solvent.

COMPARISON WITH BEEF USED AT THE INFIRMARY.

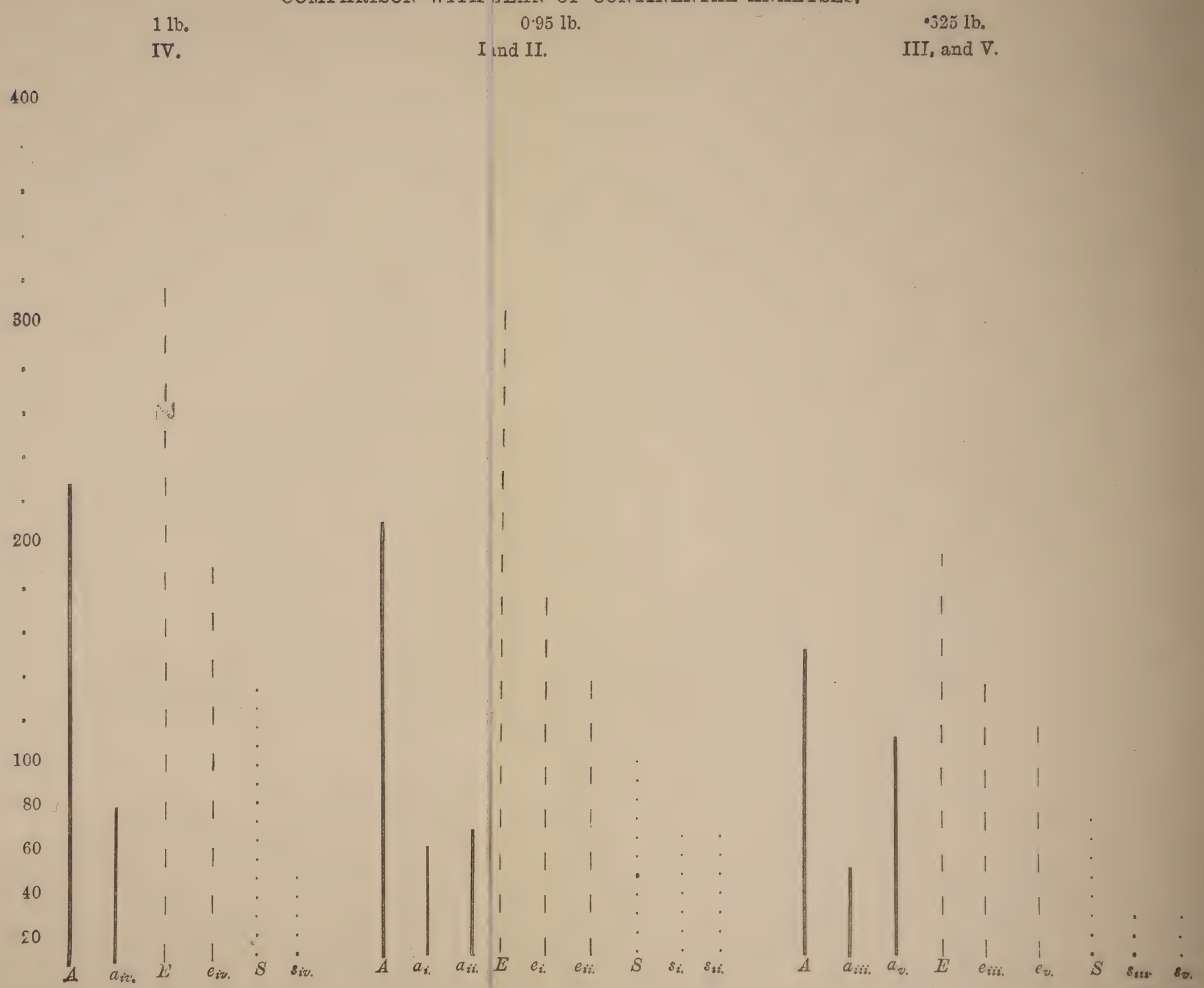
1 lb. IV.

0·95 lb. I. and II.

0·625 lb. III. and V.



COMPARISON WITH MEAN OF CONTINENTAL ANALYSES.



To make the results of the comparison clearer, the accompanying diagrams have been prepared, in which, by means of ordinates, the amounts of the constituents in the several quantities of beef used are represented, and thus compared with the amounts of these materials extracted.

In Table I. are expressed the results of the comparison based upon the analysis of beef used at the Infirmary. The mode of construction of these diagrams will be best explained by taking a specific case, *e.g.*, the one on the extreme left.

The 1lb. placed at the head denotes the weight of beef used to prepare one pint of tea; the numeral below, viz., *iv.*, refers to the sample of beef tea. The dark, thick line *A* represents the number of grains of soluble albumin in the pound of beef; the similar line $a_{iv.}$ represents the grains of albumin in the pint of tea; the lengths of these two lines indicate the extent of the extraction attained in this particular case. The dotted line *E* represents the number of grains of extractives and gelatine in the weight of beef, and $e_{iv.}$ the grains of extractives and gelatine in the tea prepared from the beef; finally, the dotted line *S* represents the grains of salts in the weight of beef, and $s_{iv.}$ the grains of salts in the tea prepared from the weight of beef. The remainder of this diagram is constructed in a similar manner, as is also Table II., in which are represented the results of the comparison with a beef of an average composition, deduced from the analytical numbers of various continental authorities.

Whilst this comparison gives an idea as to the efficiency of the methods of making beef tea, from meat of a given composition, the questions next arise in what way the various cuts of beef differ from one another in composition, and, further, which of these constituents should be chiefly represented in a beef tea. The first of these questions is answered by the analyses of different cuts of beef made by Mène, and referred to above. To answer the second is a more difficult problem; for, whilst the albumin and the water contained in beef tea can be alone claimed as the representatives of true good stuff, still both the two other groups of compounds associated with the albumin must play a by no means unimportant part in the physiological action of this infusion.

The beneficial effects of beef tea would appear to be largely due to the extractives and salts, judging from the results attending the use of "extractum carnis" (a preparation representing simply the extractives and salts) in campaigns; and the testimony borne by Rohlf, the African explorer, Whymper, and others, as to the benefits derived from its use, not as a food, but as a flavouring and stimulant.

If the beef tea is to be above all nutritions, then, for its preparation, that "cut" of beef must be used containing the

largest proportion of soluble albumin. For this purpose, the housewife chooses the shin or hough, and, in this particular, her choice is confirmed by Mène's investigations, which prove these portions of the animal to contain the largest amount of soluble albumin, viz., 4-6 per cent. respectively. But this in itself is not sufficient, for the tea must be made palatable, a quality which cannot be attained by extraction with cold water alone; and, for this purpose, it would appear that the method of preparation by which sample IV. was made is specially adapted. This method may be briefly described as consisting of an extraction with cold water, and then the cooking of the insoluble portion of the meat with a fresh quantity of water; and, in this way, bringing into the infusion the compounds which impart to the tea the flavour of meat, and thus render it palatable.

TWO CASES OF SARCOMA OF THE TESTIS.

By JAMES MURPHY, M.A., M.D., Assessor in Clinical and Operative Surgery, University of Durham College of Medicine, at Newcastle-upon-Tyne, and Surgeon to the Sunderland Infirmary.

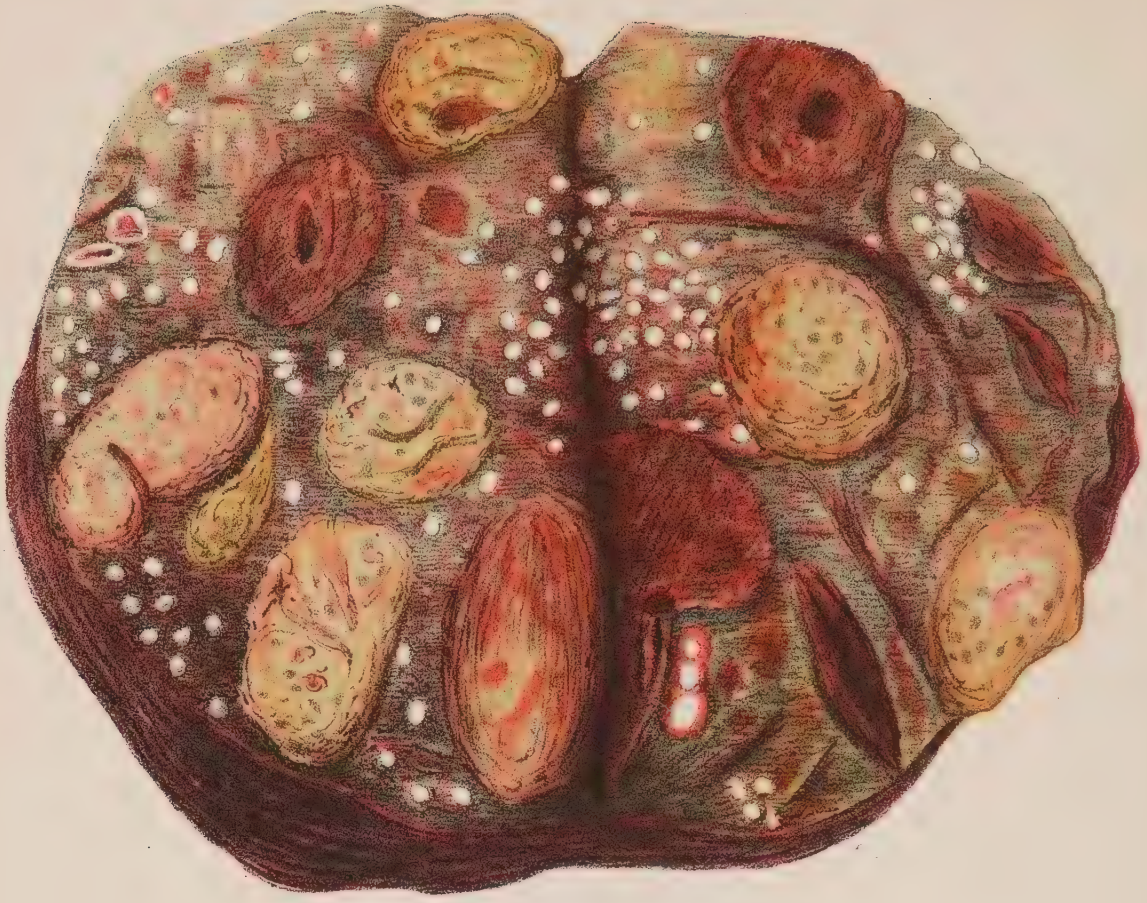
The great achievements of recent surgery in the diagnosis and treatment of the diseases of the organs of the abdomen, the thorax, and the cranium, have so monopolized the surgical literature of the day, that minor matters are neglected; and I therefore venture to publish the notes of the following cases of sarcoma of the testis, trusting that they may be acceptable, inasmuch as tumours of the testis have always been a source of difficulty in their diagnosis, although no tumour of the body offers such facilities for thorough examination; and it is within the experience of most surgeons that, the man who suffers from such a tumour, wanders about from consulting room to consulting room, and from consulting rooms to the abodes of quacks, anxious to receive each one's opinion, but extremely loath to part with the diseased organ.

In the early part of 1885, I was consulted by a strong, healthy-looking, young man, aged 21, who, three months previously, accidentally discovered a painless tumour, the size of a hen's egg, of his right testis. He applied to his ordinary medical attendant, who ordered complete rest in bed, and the application of ice, after which it was strapped, then an ointment was rubbed in, and, after a course of three months' treatment, as matters were getting worse, I was consulted, when I found the following conditions present:—The scrotum was normal in appearance, but distended by a tumour of the right testis, in size and shape not unlike a large orange, its sides flattened like the ends of the orange, perfectly painless, even on severe pressure, giving an indistinct feeling of fluctuation, but at no place could actual fluid be discovered, perfectly smooth, and of equal consistence, about the weight of a hydrocele, and quite impenetrable to the transmission of light. The separation of the epididymis from the testis could not be distinguished, nor could the testicular sensation be produced by pressure on any portion of the tumour. The glands of the groin and loin were unaffected, the cord but slightly enlarged. There was no history of any injury, or of any venereal disease; neither had there been, at any time, pain or other evidence of inflammation of the part. I therefore diagnosed sarcoma of the testis, probably cystic, and advised immediate removal. This the patient declined, and, for the following twelve months, consulted a large number of surgeons, homeopathists, faith-healers, curers of secret diseases, and others, until one surgeon, more enterprising than the rest, plunged a large trocar some inches into the tumour, which had the effect of sending the patient back to me willing to submit to castration, which was accordingly performed on February 16th, 1886.

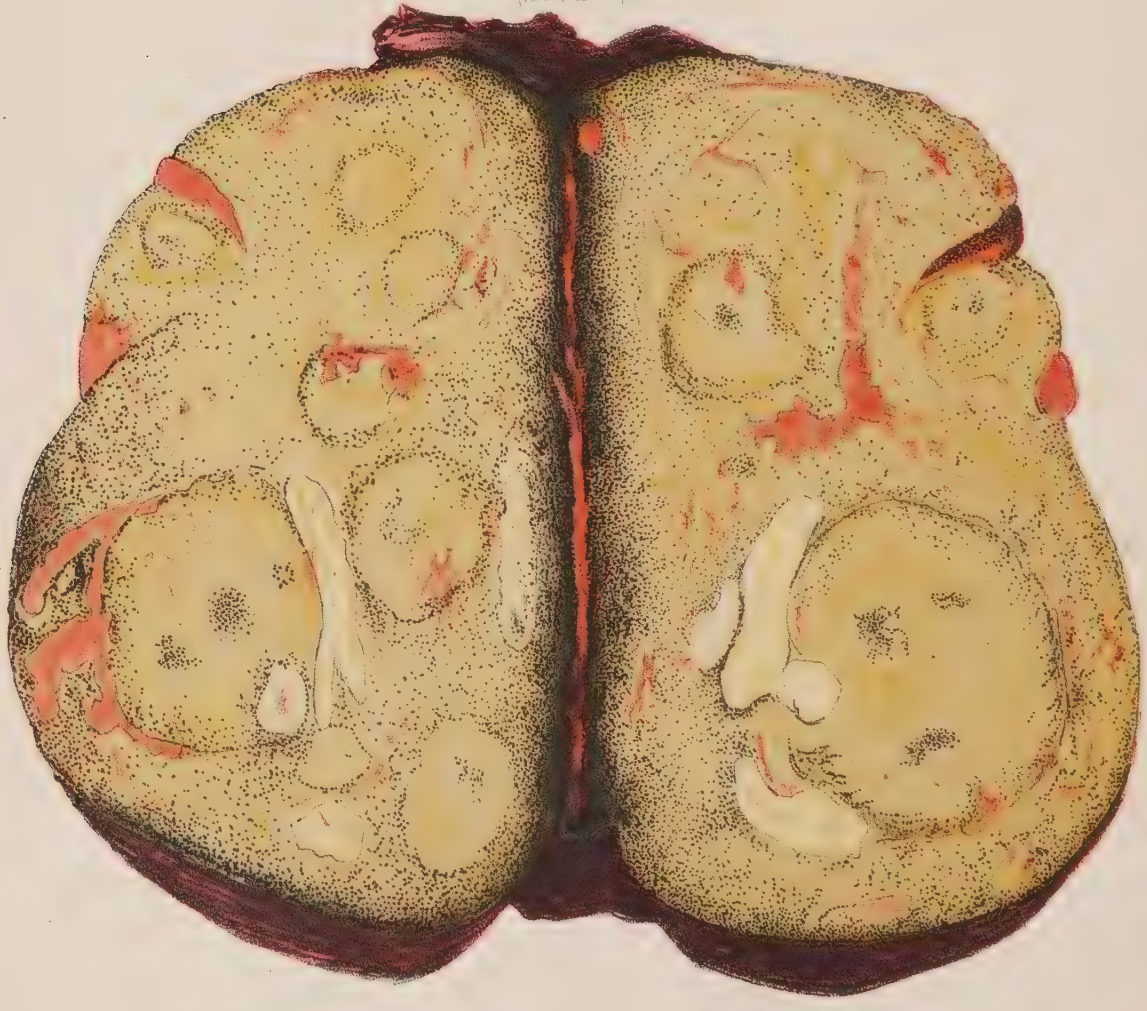
The tumour was submitted to my friend, Dr. SQUANCE, to whom I am indebted for the very accurate and beautiful drawing accompanying this paper, for the slides under the microscope, and for the following report: "The tumour weighed one pound and one ounce, and, when laid open, measured 5½ inches by 4 inches. Before being washed it presented the appearance depicted in the accompanying drawing, the surface generally being studded with very small translucent cysts, with larger ones interspersed. Some of the cysts contained a clear watery fluid, and others a gelatinous one. *Microscopic appearance:* Under a lower power, a section of the tumour was seen to consist almost entirely of cysts, varying in size, and surrounded by fibrous tissue, denser in some places than others. When more highly magnified, the cysts were seen in many cases, to be lined with a delicate, hyaline membrane, studded with small cells almost exactly resembling those found in the vesicles of a hydatiform mole. In some of the cysts villous projections into the interior were noticed; on the confines, the growth was much softer, consisting of small round, and spindle-shaped cells. The pearl-like bodies were of two kinds, soft and hard; the former contained fatty debris of granules, fibre-cells, and cells resembling seminal epithelium cells, while the hard ones contained what appeared to be ill-developed cartilage, large cornified cells, without nuclei, fragments of seminal tubes, fatty and molecular matter and pigment. There were no spermatozoa."

In three weeks time the wound was practically healed, but about the middle of April, he complained of abdominal pain, and on examining the abdomen, I found a large tumour reaching almost to the umbilicus, which contained fluid, and very much resembled in its clinical characters an ovarian cystoma. He rapidly lost flesh, and, towards the end of May, the tumour was enormous. He now measured fifty-six inches round the umbilicus, his legs were enormously swollen, while his chest and arms were like those of a skeleton. I tapped the large cyst in the front part of the tumour, and, after removing forty-three pints of dark, grumous-looking fluid, there still remained a large solid growth behind. On June the 9th, he died, and I removed an enormous growth—small rounded cell sarcoma—which occupied about the whole abdomen, firmly adherent to pelvis and abdominal walls, and including in its growth, omentum, mesentery, intestines, liver, stomach, in fact, the whole abdominal contents were more or less implicated in the growth.

Case II.—M. W., æt. 74, of Redcar, Yorkshire, consulted me last December. He supplied the following history:—Had been a remarkably healthy man all his life; never had venereal disease or rheumatism. Last September noticed that his right testicle, without any apparent cause, began to swell, which, in a few weeks, was followed by similar swelling of the left testicle, that both



Cystic Sarcoma of Testicle
(about ⅔)



Sarcoma of Testicle
(about ⅔)

T. C. Saunders pinx. Dawkinson & Co. London lith.

had continued steadily growing, in spite of various remedies applied by many physicians, until now the right testicle was the size of a small cocoa nut, and the left very similar in all its characters, but somewhat smaller. They were pyriform in shape, somewhat resembling what fruiterers sell as Duchesse pears, and felt rather like a not too ripe one, that is, that though soft and yielding, they gave no evidence of fluctuation; were impervious to light, and felt lighter than a hydrocele. Their sides were somewhat flattened, and their surface regular, except here and there were a few bossy knobs, slightly harder than the rest of the tumour; in front of each was a collection of fluid. Both could be strongly squeezed without causing pain, no glands in the groin or within the abdomen could be felt to be enlarged, the cords were as thick as one's little finger, the epididymis could not be distinguished, the scrotum was of a congested and livid appearance, its veins being varicose, but in no place was it adherent to the tumours.

From these characters, their history, the absence of an inflammatory state at any period, the patient's age, and from both testicles being affected, as well as from the complete failure of the various treatments, I felt justified in diagnosing sarcoma of both testicles, and removed them on December 10th. The wound healed in a fortnight, and, at the end of a month, he returned to his home in Yorkshire, and so far (September, 1887), continues well, but, I fear, sooner or later, there will be a return of the disease.

The accompanying drawing for which, with the slides, I am also indebted to my friend Dr. Squance, very accurately depicts the appearance of the disease. He has kindly furnished me with the following microscopical report:—"The principal portion of the new growth is composed of small round cells, with spindle cells interspersed, and, in places, fibrous tissue with embryonic vessels. In the older portion of the tumour the seminiferous tubes have disappeared, with the exception of the remains of a few atrophied ones; whilst in the newer portion some of them appear to be developing into cysts, confirmative of Péan's statement, that these small cysts grow in the ducts of the gland. The right testicle, which weighed one pound and four ounces, contained two ounces of straw-coloured fluid on its anterior surface, *underneath the tunica albuginea*, containing round cells, external surface somewhat bossy, as is also cut surface to a slight degree, which is of a pale yellow colour, in marked contrast to the rosy tint of several little hemorrhages on its pale surface, and here and there are little oblong or roundish plaques of a yellow colour, which were formerly regarded as portions of carcinoma, but which are, in reality, patches of broken down, fatty, and degenerating tissue, and have been described by Robin, under the